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THE USE OF DIGITALIS OTHER THAN IN THE TREATMENT OF CARDIAC DECOMPENSATION

HENRY A. CHRISTIAN, M.D.

BOSTON

We of the present generation of physicians are all too apt to discount the medical wisdom of our predecessors instead of realizing that they were keenly wise clinicians who, even though they possessed far fewer instruments of precision and laboratory tests then have we, were critical observers of patients and knew in what we like to call an empirical way much that we have been unable to improve on. One of the difficult tasks of modern medicine has been to find a scientific reason for the action of many therapeutic procedures developed by our medical forebears.

The use of cod liver oil is an excellent example of this. Many generations of clinicians prescribed cod liver oil because they witnessed its efficacy, and they found out what conditions it benefited most strikingly. Many were the theories advanced in explanation of its effectiveness, some of them weirdly complex. Only recently has knowledge of vitamins started investigators on the probably correct explanation of the action of cod liver oil. Fortunate it has been for many patients that physicians continued to use cod liver oil just because observations showed it to be beneficial, instead of saying "Until we know in a scientific way just how it acts, we will not use it."

Somewhat similar conditions have prevailed concerning digitalis. Withering showed the striking effectiveness of digitalis in treating dropsical conditions, although he knew nothing of the mechanism of its action. For many years Withering's wise directions of 1785 in regard to the use of digitalis were disregarded, and for a long period of time after Withering there was an almost complete abandonment of Withering's criteria of the therapeutic use of digitalis. Later such pharmacologic knowledge as had been obtained, instead of improving the clinical use of digitalis, aroused such fear of the toxic actions of digitalis that physicians became afraid to give it to patients in dosage needed to produce adequate therapeutic effects. Then came more complete knowledge of the pharmacology of digitalis and a return to the therapeutic dicta of Withering with an ending of those therapeutic fears that had inhibited us from obtaining good digitalis effects in our patients. Digitalis regained its place of great usefulness in the treatment of cardiac decompensation with later a tendency toward very large dosage from which recently there has been a recession to more moderate dosage with, in my judgment, a definite improvement in the management of cardiac decompensation.

Our predecessors in the practice of medicine made use of digitalis other than in the treatment of cardiac decompensation. Withering, of course, considered digitalis a diuretic. There has been much discussion as to whether digitalis has any diuretic action apart from its effect in improving renal circulation as part of a general circulation improvement in patients with cardiac insufficiency. Some have denied any direct diuretic effect, while others have claimed that digitalis had a diuretic action apart from any effect on the general circulation. Recent observations in my laboratory by Dr. E. A. Bartram on normal dogs in which digitalis was introduced into the renal artery show that digitalis does cause a diuresis. However, there is no doubt that the clinical efficiency of digitalis as a direct diuretic is slight, while as an indirect diuretic in the presence of cardiac decompensation digitalis often is very effective, and certainly as a diuretic under these conditions it is most useful.

Many of the older practitioners regarded digitalis as a heart "tonic" and gave it in small doses to patients in whom there were no definite signs or symptoms of cardiac decompensation. This use was based either on simple clinical experience with patients or on imperfect knowledge of the pharmacologic action of digitalis. In recent years such utilization of digitalis seems largely to have been discontinued. When I was a medical student, over thirty years ago, I was taught to use digitalis only after signs and symptoms of cardiac insufficiency developed, but not to give it when merely evidences of such pathologic conditions as hypertrophy or murmur were detected. Recent books seem to continue such teaching. As examples of this White[1] says: "There are three chief indications for the need of digitalis therapy: (*a*) congestive heart failure, with or without auricular fibrillation, auricular flutter or heart block, (*b*) auricular fibrillation or auricular flutter with rapid ventricular rate, when quinidine sulphate alone is not administered at once, and (*c*) as a therapeutic test when it is uncertain whether or not there is a slight degree of congestive failure, or perhaps as a means of warding off impending failure, as in the case of old people with dyspnea on exertion, of victims of chronic pulmonary emphysema with a higher degree of dyspnea than is readily attributable to the lung condition alone, and of patients with pneumonia." In Osler-McCrae,[2] under treatment of myocardial insufficiency, the statement is made concerning digitalis that "the indication for its use is insufficiency of the heart muscle, especially when auricular fibrillation is present; it should not be given when there is good compensation," and under treatment

Read before the Harvard Medical Society, Boston, Dec. 13, 1932.

1. White, P. D.: Heart Disease, New York, Macmillan Company, 1931.
2. Osler, William, and McCrae, Thomas: Principles and Practice of Medicine, New York, D. Appleton & Co., 1930.

of chronic valvular disease of the heart, "a common error is to administer drugs, such as digitalis, on the discovery of a murmur or of hypertrophy." Cecil [3] seems to make no reference to the use of digitalis in heart disease except under the heading of treatment of cardiac failure, and the same is true of Musser.[4]

Our professional ancestors, as already stated, had what they called a "tonic" use of digitalis, using it in small doses as a cardiac "tonic." In recent years I myself have come to the belief that digitalis has a worthwhileness in treatment entirely apart from its undoubted value in the control of cardiac decompensation. This belief does not depend on any assumption that digitalis is a cardiac "tonic" in the usual sense of the word "tonic" but on the belief that digitalis helps to inhibit cardiac hypertrophy and to retard some of the aging process of the myocardium.

CARDIAC ENLARGEMENT AND CARDIAC EFFICIENCY

Before discussing further these uses of digitalis, I should diverge from my main topic to give my ideas in regard to the relationship between cardiac enlargement and cardiac efficiency. These may be stated in the thesis: Cardiac hypertrophy, instead of being a beneficient process, is an injurious influence on cardiac function; the heart, once enlarged, is already on its way to eventual decompensation; to retard hypertrophy is to prolong cardiac efficiency.

These statements seem in opposition to what is known of muscle function and the effects of training. Hypertrophy of the heart muscle has been considered to be a way of increasing heart function, because such seems to be true of skeletal muscle. If the arm muscles, for example, are exercised, these muscles enlarge and acquire greater strength. If the exercise is decreased, these muscles decrease in size and lose in strength. Why should not the same be true of heart muscle, in many respects so similar in structure to skeletal muscle? Briefly, the answer is that heart muscle surrounds a cavity and the effect of its contraction is to empty a cavity, conditions entirely different from those pertaining to skeletal muscles. When heart muscle hypertrophies, the cardiac cavities enlarge and contain more blood. The result is more work for the heart muscle to do. More work causes more hypertrophy and still larger cavities with still more of a load of work. It is the stretching of the muscle by an increased load that is the stimulus to hypertrophy. Stretching cardiac muscle enlarges the cavity surrounded by the muscle. For a time hypertrophy keeps in balance with increasing load resulting from enlarging the cardiac cavities. In the heart, however, with muscle forming the wall of a cavity, soon there is a disproportion between thickness of muscle wall and size of surrounded cavity and a lag ensues in hypertrophy in relation to the work demanded of the myocardium, followed by a decreasing efficiency of heart function.

Clinical observation has taught that with few exceptions the enlarged heart rarely recedes in size and that sooner or later the enlarged heart shows signs of inefficiency. It may be taken as a clinical dictum that cardiac hypertrophy with rare exception is the first evidence of cardiac failure, though it may long antedate any symptoms or signs of cardiac insufficiency. If one considers that type of heart disease which is most frequent in adults, so-called chronic myocarditis, chronic nonvalvular heart disease or chronic myocardial insufficiency, whatever term one prefers to use for this condition, it will be found that the foregoing statement is unqualifiedly true.

If, then, as I believe, cardiac enlargement is functionally harmful, intelligent therapeutics will seek to retard it. It is generally believed that increased demand on cardiac function serves to increase cardiac enlargement, and so clinicians advise patients with enlarged hearts to decrease their physical exertion. Can anything else be done in the way of treatment? I believe that just here digitalis has a definitely desirable effect, and if given daily in moderate dosage it will retard cardiac enlargement and delay the appearance of symptoms and signs of cardiac insufficiency. Consequently I advise patients in whom I find enlargement of the heart to decrease physical exertion and to take continuously from 0.1 to 0.15 Gm. of digitalis leaves twice daily, unless this amount causes toxic symptoms, as occasionally it does. If that happens, the dose is reduced to a point at which no toxic symptoms appear. Digitalis for these patients is continued throughout the remainder of life. The optimum dose is that just below the one which eventually produces toxic manifestations, a dose to be determined by the method of trial and error.

USE OF DIGITALIS

If cardiac insufficiency has developed to a point to produce symptoms and signs marked enough to interfere with the individual comfort and activities, it is said that cardiac insufficiency has developed or that the heart is decompensated. Rest and digitalis is the practically universally instigated therapeutic management of such cases. In a large percentage so treated, symptoms and signs of cardiac insufficiency very largely disappear. With return to a greater degree of physical activity, sooner or later a return of the same symptoms and signs is to be expected. Clinical experience indicates that, if to such patients a daily ration of digitalis, short of toxic effects, is given, this return of evidences of cardiac insufficiency will be delayed. Consequently it has become a quite general practice to give such patients digitalis continuously in amount just short of toxicity, the proper amount approximating 0.15 to 0.25 Gm. daily of powdered digitalis leaves, the exact amount being determined by the method of trial and error, some patients tolerating more and others less than this daily ration in the sense of being just short of toxicity. This elsewhere I [5] have termed the continuation treatment with digitalis.

Now if digitalis, thus used as a continuation treatment, is helpful under the circumstances just enumerated, it is reasonable to suppose that, if given in this way prior to the development of symptoms and signs of cardiac insufficiency, development of these symptoms and signs might be delayed. My own clinical experience seems to be in accord with this idea, and so I have come to give digitalis in this way to patients in whom I can detect evidences of cardiac disease, particularly cardiac enlargement. It does seem as if cardiac enlargement is retarded and that these patients are capable of greater activity without having symptoms or signs of cardiac insufficiency than are patients otherwise similar not receiving digitalis.

There are certain individuals in whom, although there is no detectable evidence of cardiac enlargement, one can feel quite certain that sooner or later enlarge-

3. Cecil, R. L.: A Text-Book of Medicine, Philadelphia, W. B. Saunders Company, 1930.
4. Musser, J. H.: Internal Medicine, Philadelphia, Lea & Febiger, 1932.
5. Christian, H. A.: Oxford Monographs on Diagnosis and Treatment, New York, Oxford University Press 3: 202, 1928.

ment of the heart will take place. The most numerous in this group are individuals with hypertension and next in frequency come those who have developed a diastolic murmur of some sort or who, with a past history of rheumatism, show a systolic murmur without any murmur in diastole. The query naturally occurs in light of what I have just been saying, Why not give digitalis to such individuals?

Certain observations of pharmacologists investigating digitalis have a bearing on this suggestion. At one time it was believed that digitalis would cause cardiac hypertrophy, but many experiments have shown that this did not occur. Cloetta noted that animals receiving digitalis over long periods of time had even lighter hearts than those receiving no digitalis. Furthermore, he found that, if aortic insufficiency was produced, animals subsequently given digitalis had hearts both smaller and more efficient than did animals with similar aortic lesions not receiving digitalis. Here is experimental evidence in favor of the clinical thesis that I have just enunciated in regard to beginning digitalis even prior to the development of hypertrophy in those patients in whom hypertrophy may be expected to develop.

Observation has shown that in the aging process the heart muscle loses water. Other observations show that one effect of digitalis is to increase hydration in heart muscle. This points to a probable therapeutic effectiveness of digitalis for elderly patients not to be expected in the young. Heart disease due to myocardial insufficiency is most frequent in the later decades of life. Clinical experience points to a particular usefulness of digitalis in just this group of individuals, those past middle life (40 to 50), with cardiac enlargement without valve lesions, not yet having symptoms or signs of cardiac decompensation. Competent observers believe further that in elderly people with no evidence of cardiac enlargement but in whom circulatory efficiency is lessening, digitalis increases heart efficiency, and here digitalis possibly may be said to have a definitely "tonic" effect, presumably increasing the hydration, which has decreased in the aging process.

Pharmacologists have demonstrated a certain automaticity in the regulation of digitalis effects that help in the treatment of patients with cardiac enlargement. Digitalis, before it exerts any digitalis effect, is fixed in the heart muscle. After fixation in the heart muscle it is split up into an inert carbohydrate and a substance that produces a digitalis action. This fixation varies directly with the concentration of digitalis circulated to the heart muscle and with the bulk of the heart muscle but indirectly with the rate of circulation through the muscle. These laws of digitalis action influence the effectiveness of digitalis therapy. As the heart enlarges, all other factors being unchanged, a given dose of digitalis has an increasing effectiveness in ratio to the increasing bulk of the myocardium. As the myocardium loses in efficiency, the circulatory rate in the coronary system of vessels is slowed. As a result of this, more digitalis is fixed in the heart muscle fibers and this causes an increased digitalis action. In other words, within certain limits, an automatic increase in digitalis action occurs under just those circumstances that would need a greater digitalis action and that without any increase in size of dose. As heart action improves, circulatory rate through the myocardium accelerates and fixation of digitalis decreases, thus bringing about a lessened effect from a given dosage than would be the case were there not this relationship. In other words, when there is more need for digitalis, digitalis is proportionately more effective, and when the need decreases, the same dose of digitalis has less effectiveness. This saves the clinician from the necessity of continuously changing digitalis dosage to meet changing function of the heart muscle.

CARDIAC ENLARGEMENT OR DILATATION

During the preceding discussion I have used cardiac enlargement and cardiac hypertrophy interchangeably. I have made no mention of dilatation of the heart. Whenever the heart enlarges or hypertrophies, the cavities of the heart enlarge and this is dilatation. Dilatation without hypertrophy practically does not occur. What clinically is considered acute dilatation of the heart is either a paroxysm of fibrillation or flutter or is actually a decrease in heart size with an accompanying decreased systolic output of blood. It seems to me, for the reason given, desirable not to use in clinical discussions the term dilatation of the heart, but to speak only of enlargement or hypertrophy.

VALVULAR HEART DISEASE

What has been said about nonvalvular forms of heart disease applies, too, to valvular types of heart disease except that since valve lesions occur chiefly in younger people, in whom heart muscle has not lost water, the action of digitalis on heart function is less effective than when given to older persons. Also, as valve lesions introduce an unchangeable mechanical factor decreasing heart efficiency, again not so striking an improvement is to be expected from giving digitalis to these patients. However, since there is no harm caused by giving digitalis, it is reasonable to give it, too, in valvular heart disease as just advised for nonvalvular heart disease both prior to and subsequent to the appearance of symptoms and signs of cardiac decompensation. It seems probable, however, that here it will not be as useful as with nonvalvular forms of heart disease.

LONG CONTINUED DOSAGE

Digitalis for the conditions just being discussed is continued over very long periods of time. Obviously, if a drug is to be taken daily over long periods of time, it is essential that the drug has no harmful effects, direct or indirect, that it has no habit-forming qualities and that from continuous use it does not lose its effectiveness. There is no pharmacologic or clinical evidence that any of these things happen. Repeatedly have I seen the patient who has been taking a daily dose of digitalis for weeks and months respond to an increased dose indicated by reason of developing evidences of cardiac decompensation, in just the same way as a patient with similar evidences of cardiac failure who had received no previous digitalis therapy.

If one will stop to think of the way digitalis acts, it will be seen to be an ideal drug, pharmacologically, for long continued dosage. Digitalis given by any route or dosage reaches the heart muscle, where it is promptly fixed or bound. In a short space of time it commences to be split within the muscle into a part that has digitalis action and an inert part. This splitting is a gradual process, long continued, very slowly decreasing in the degree of digitalis action on the heart muscle. Before one dose has ceased to act, another can be given, which in its turn will be fixed and split and continue a digitalis effect. It is entirely possible on account of this way of action to space properly sized doses of digitalis so as to maintain a digitalis action throughout the twenty-four hours with but little fluctuation from hour to hour in the intensity of that action and to continue it prac-

tically indefinitely from day to day by suitable doses not closer together, let us say, than twelve hours. Could there be a more ideal mechanism for maintaining a therapeutic effect over very long periods of time? In this respect digitalis has a part almost like the replacement therapy of thyroid gland substance in myxedema, insulin in diabetes mellitus and liver extract in pernicious anemia, for all of which physicians say to their patients, you must continue taking this daily so long as life lasts.

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TECHNIC OF NONSURGICAL DRAINAGE OF THE BILIARY TRACT

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Recent developments in the study of biliary tract disease have given added importance to nonsurgical drainage of the biliary tract. This description of technic, based on the procedure described by Lyon [1] in 1923 and including recent improvements, is given because the drainage can have no diagnostic or therapeutic value unless it is properly performed. The method described has proved satisfactory in more than 3,000 drainages which have been done as part of the routine in the Medical and Surgical Gall Bladder Clinic of the New York Post-Graduate Hospital.

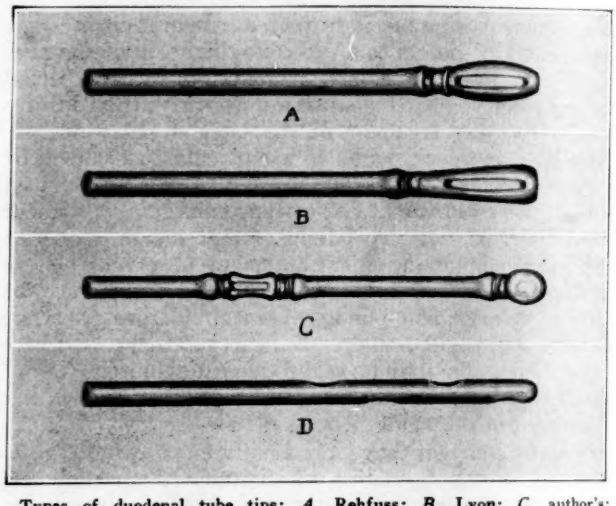
In the performance of a drainage, the relaxation and comfort of the patient are important. A quiet room with not more than one patient gives best results. Reassurance on the part of the operator is helpful if the patient has not had the tube before. He is instructed to swallow the tip of the tube in the same way as food. Before he does so, the tip is moistened by water or oil. After the tube tip has passed the glottis, as indicated by a tug, which can be felt by the operator, it can be passed quickly into the stomach without further swallowing.[2]

The duodenal tubes used in this clinic are the Levin catheter-tip and the metal-tip models such as the Rehfuss, Lyon, and one that I [3] have recently described. In our experience the metal-tip models shown in the illustration have proved more satisfactory for the average patient. The terminal weight allows more certain passage of the tube into the duodenum and tends to prevent its regurgitation into the stomach. A fresh resilient tubing is essential for good results. The duodenal tube, when not in use, should be hung in a dark closet rather than coiled. The metal tips when corroded should be replated.

Our tube has proved useful, especially in patients in whom drainage by other types of duodenal tubes has been unsuccessful. The features of this tube which have been described include the use of a larger tubing, a metal tip of smaller diameter, and a terminal weight which acts as a leader in drawing the bucket into the duodenum and tends to hold it there. When drainage is to be repeated, the markings of the tube provide information as to what length of tubing was used to procure bile. For this purpose there is a numbered scale from the fourth, or 80 cm., mark to the two-ring mark; the number at the lips of the patient during the drainage is recorded on his chart.

For drainage the patient is instructed to report in the morning with an empty stomach. If a previous drainage has proved unsatisfactory, a preliminary course of bromides or belladonna is given over a period of three days, including the morning of the drainage. For sensitive throats and to prevent gagging, a throat spray of 4 per cent cocaine hydrochloride usually gives relief. Retching or excessive salivation after the tube is in the stomach is controlled by the injection through the tube of a solution of 30 grains (2 Gm.) of triple bromides or one-fiftieth grain (1.3 mg.) of atropine sulphate. These measures also relieve pylorospasm, which is indicated by failure of duodenal intubation.

The passage of the tube from the stomach into the duodenum affords the greatest possibility of difficulty. This may be done with the patient in the sitting position or with the patient lying on the right side. By either method a gastric specimen is procured after the tube has been passed, the patient remaining in the sitting position, to approximately the two-ring mark. The stomach is lavaged with hot water. The tube is then withdrawn nearly to the one-ring mark.



Types of duodenal tube tips: *A*, Rehfuss; *B*, Lyon; *C*, author's; *D*, Levin.

The timing of the passage of the tip through the stomach is essential to allow engagement of the tip in the pylorus and to prevent looping. The tube is best introduced by the patient, if cooperative. He is given a watch and shown a marker on the drainage tube. This marker is placed at the fourth mark if the sitting position is used, at the three-ring mark if the patient is lying on the right side. For the sitting position the tube may be pushed down at the rate of one inch a minute, for the prone position one inch every two minutes. Our usual procedure is first to attempt introduction in the sitting position. If this is unsuccessful in obtaining bile even after a stimulation with hot water, the tube is withdrawn to the one-ring mark and passed with the patient lying on the right side.

Fluoroscopic control of duodenal intubation as described by Morgenstern [4] has been of value in difficult

This work has been aided by a grant from the Oliver Rea Fund.
From the Departments of Medicine and Surgery of the New York Post-Graduate Hospital.

1. Lyon, B. B. V.: Non-Surgical Drainage of the Gall Tract, Philadelphia, Lea & Febiger, 1923.

2. The complete equipment includes: drainage tubes, a 1-ounce bulb syringe, ten 2-ounce wide-mouth bottles with labels and corks (for bile specimens), pus basin, a 32-ounce graduate, drinking glass, safety pins, a dozen paper napkins, a throat spray containing 4 per cent cocaine hydrochloride, a 16-ounce bottle of 50 per cent magnesium sulphate, a 2-ounce bottle of olive oil, 4 ounces of triple bromide mixture, a vial of tablets of atropine sulphate, 1/100 grain and a vial of congo red paper. A large ring-stand provides an adjustable tray for holding the drainage bottle. A clamp on the stand secures the drainage tube.

3. Twiss, J. R.: A New Type of Duodenal Tube Tip, Am. J. M. Sc. **185**: 109 (Jan.) 1933.

4. Morgenstern, Morton: A Simplified Procedure for the Introduction of a Tube into the Duodenum, J. A. M. A. **97**: 175 (July 18) 1931.

patients. For this purpose our own tube or that of Levin is used. The patient stands before the fluoroscope with the tube in the stomach, facing the operator, who is seated. The tube is withdrawn until it is seen to hang vertically in the cardiac end of the stomach. The patient is then instructed to swallow the tube slowly and to breathe deeply; at the same time the operator pushes the greater curvature of the stomach upward with the left hand and directs the tip toward the pylorus with the right hand. By this means the tube can frequently be introduced into the duodenum in a few minutes. The tip can easily be seen looping upward and over into the duodenum in the right upper quadrant. This action is best visualized with the metal tip. The injection of an ounce of very hot water is at times of assistance in passing the tip through the pylorus.

When no fluoroscope is available, the position of the tube in the duodenum may be checked in several ways. The character of fluid aspirated may be of assistance. Gastric contents are watery, are turbid, contain flakes of mucus, and turn green if bile stained. Duodenal contents are usually clear, homogeneous, more viscid, and golden yellow if bile is present. A stimulation with hot water is sometimes necessary to obtain bile. Gastric contents containing free hydrochloric acid turn congo paper blue. This reaction usually disappears in duodenal contents. Air injected by syringe into the stomach usually returns promptly; if the tip is in the pylorus or duodenum the return of air is retarded.

After the duodenum has been entered, 1 or 2 ounces (30 or 60 cc.) of clear golden yellow bile usually drains by siphonage. After this an ounce of warm 16 per cent magnesium sulphate is slowly injected, allowed to remain two minutes, and then siphoned off before the bile specimen is collected. Two similar injections of 25 per cent magnesium sulphate are given to obtain further specimens. If dark concentrated bile is not obtained after three injections of magnesium sulphate, an ounce of warm olive oil is instilled and allowed to remain in the duodenum ten minutes, after which further specimens are obtained. If at any time the flow of bile ceases, this may be due to plugging of the tip by mucus. The tip may be out of position, having gone beyond the duodenum or regurgitated into the stomach.

Specimen bottles of bile are numbered consecutively, beginning with the gastric contents. Each is designated according to the stimulant used, as described elsewhere.[5] Chemical analyses are done as indicated. Usually about 2 ounces of bile is obtained after each stimulation, the total amount of bile being approximately 12 to 15 ounces (350 to 450 cc.).

Examination of bile specimens is recorded by a check system on a special drainage sheet. The volume of each specimen is noted, together with its appearance as to color, viscosity, turbidity, and amount of sediment. A sample of sediment is procured by means of a pipet from each bottle and examined microscopically. A quantitative estimate is made of such elements as clear or bile-stained pus cells, columnar epithelial cells, crystals of cholesterol or calcium, calcium bilirubinate, bile-stained mucus, and débris.

Sterile drainages must be done under certain precautions. A separate room is used for this purpose. All containers, equipment, and solutions[6] are sterilized before use. The patient is instructed to gargle repeatedly before the drainage, using a solution of 1 drachm of silver nucleiate to a half glass of sterile water. The patient is cautioned against swallowing saliva, and the gastric lavage is performed with hot sterile water. In taking a culture the terminal piece of rubber tubing is removed temporarily from the straight glass tube, or from the arm of the Y tube which has not been used for injecting fluid. The sterile glass tip is then flamed before bile specimens are collected. A few cubic centimeters of sterile water is first run through the tubing and cultures are taken in broth to check sterility. Five cubic centimeters of each type of bile is collected in a plain sterile test tube for plating purposes. By this technic it has been possible to obtain sterile cultures in a large proportion of cases and to obtain a single organism repeatedly in the same patient.

5. Twiss, J. R., and Killian, J. A.: Diagnostic Methods and Metabolic Studies in Biliary Tract Disease, to be published.

6. Additional equipment necessary for sterile technic includes a straight glass window or a Y tube (with rubber tubes and clamp) for the syringe end of the drainage tube, sterile test tubes, alcohol lamp, silver nucleiate 15 per cent, sterile magnesium sulphate 50 per cent, sterile olive oil, a liter of sterile water, and sterile towels.

SUMMARY

1. Recent investigation has confirmed the importance of duodenal drainage as a means of investigating the biliary tract.

2. Proper performance of this procedure is essential for the results to have any value in the diagnosis or treatment of biliary tract disease.

3. The clinic routine as outlined has proved satisfactory in more than 3,000 drainages.

65 East Fifty-Fifth Street.

THE EFFECTIVENESS OF COMMERCIAL DIPHTHERIA TOXOID IN ACTIVE IMMUNIZATION OF INFANTS

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Diphtheria toxoid as an antigen for the production of active immunity has proved very effective.[1] The report of a series of 100 infants so treated was published in 1931.[2] In this group, 98 per cent were rendered negative to the Schick test; in these cases the production of immunity was quite rapid, the greatest proportion showing a negative Schick test within two weeks of the last dose of toxoid and complete immunity being produced in six weeks in practically all. In this group the technic of immunization consisted in the hypodermic injection of two 1 cc. doses of toxoid, spaced at a three weeks interval in thirty-six and at a one week interval in eighty-one. The group in which the short interval was used apparently showed just as good results as the one with the longer interval. A commercial toxoid was used, all of which was produced by the same manufacturer.

In continuing the immunization program during the past year, a batch of toxoid was purchased from another manufacturer. In the group of babies immunized with this particular material, the results seemed less favorable. Immunization seemed to be slower in appearance and the number of failures greater. It was therefore decided to place several groups of infants on various types of commercial toxoid to determine whether or not there might be some variation in antigenic potency in

From the St. Vincent's Infant and Maternity Hospital and the Department of Pediatrics, University of Illinois College of Medicine.

1. Ramon, G.: La méthode d'immunisation active par l'anatoxine diphtérique: Etude critique et comparative, Bull de l'Inst. Pasteur **30**: 1-6 and 65-75 (Jan.) 1932.

2. Greengard, Joseph: Diphtheria Toxoid (Diphtheria Anatoxin Ramon) in Infancy, J. A. M. A. **97**: 228 (July 25) 1931.

the material marketed. The groups were taken in rotation as positive Schick tests were obtained, with no attempt at selection. The technic was the same in all infants and was identical with that used in the series reported with the exception that a one week interval was used in all cases. Two distinct series were run with the toxoid that gave poor results, separate packages being purchased for each series, and immunization carried out in the second series six months later than that of the first to rule out the possibility that a single

TABLE 1.—*Comparative Results of Immunization with Five Commercial Toxoids*

Toxoid	Cases	Persistent Positive	Negative									
			2 Wks.		4 Wks.		6 Wks.		8 Wks.		10 Wks.		12 Wks.		20 Wks.	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	30	1	3.3	14	46.6	12	40.0	3	10.0	1	3.3	..	....	..	....	..	....
2	35	1	2.8	20	57.0	11	31.4	1	2.8	2	5.7	..	....	..	....	..	....
3a	28	4	14.2	4	12.5	7	18.7	6	31.2	1	6.25	4	18.7	1	6.25	1	6.25
3b	30	6	20.0	16	66.6	3	12.5	3	12.5	..	....	2	8.3	..	....	..	....
4	17	0	0.0	3	17.6	12	70.5	2	11.7	..	....	..	....	..	....	..	....
5	22	0	0.0	3	13.5	17	77.2	1	4.5	..	....	1	4.5	..	....	..	....
Tot.	162	12	7.4	60		62		16		4		7		1		1	

lot of ineffective material might have been used. The toxoid was purchased in the open market and was used up quite rapidly, in every case within almost a year of the expiration date as given on the package.

The results are given in table 1. It will be noted that in the five brands of toxoid used, one, designated as 3, was definitely less effective than the other four. In the first series of twenty-eight cases, four, or 14.2 per cent, remained persistently positive. Of the twenty-four infants completely immunized, the interval between the last dose of toxoid and the ensuing negative Schick test was over six weeks in seven cases and as long as twenty weeks in one. In this connection it must be borne in mind that, in an individual who has received a primary antigenic stimulus, even minute secondary antigenic stimuli, such as the tiny amount of toxin used in a Schick test, may produce considerable amounts of antitoxin (Glenny,[3] O'Brien [4]). It is therefore quite possible that some of these infants who became negative after ten, twelve or twenty weeks may have responded to the repeated small doses of Schick toxin with suffi-

TABLE 2.—*Age Distribution of Infants in Each Group*

Toxoid	Cases	Per Cent Immunized	Under 2 Wks.		2 Wks. to 3 Mos.		3 Mos. to 6 Mos.		6 Mos. to 9 Mos.		9 Mos. to 12 Mos.		Over 1 Yr.	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1 and 2	65	97	5	7.6	19	29.0	18	27.6	20	30.7	2	3.0	1	1.5
3a	28	85.8	1	3.6	11	39.2	8	28.5	6	21.4	0	0.0	2	7.1
3b	30	80	0	0.0	8	26.6	12	40.0	10	33.3	0	0.0	0	0.0
4 and 5	39	100	2	5.1	7	18.0	9	23.0	16	41.0	1	2.6	4	10.2

cient antitoxin to bring them above the Schick level. In the second series on toxoid 3, six of thirty infants, or 20 per cent, remained persistently positive. In this group all but two of the immunized infants demonstrated a negative Schick test within six weeks of the second dose.

The remaining groups showed definitely better results. Groups 4 and 5 showed 100 per cent protected, and all but one of these demonstrated a negative Schick within six weeks. Groups 1 and 2 showed approximately 97 per cent completely immunized, and the immunity here also was rapid in appearance, the results being comparable to the first series reported.

The great difficulty in achieving absolutely parallel series of cases in clinical investigation is readily apparent. In this connection, age is of considerable importance in comparing the effectiveness of an antigen, for it has been shown that the ability to produce antibodies increases with age.[5] The age distribution of the various groups is shown in table 2. It will be noted that the groups in which 100 per cent immunity was obtained (thirty-nine cases) in general tended to be composed of older infants than group 3 series a, in which 85 per cent were rendered Schick negative. On the other hand, group 3 series b, with only 80 per cent rendered immune, gave very nearly the same age distribution as the infants in groups 1 and 2, which yielded 97 per cent immunized, 66.6 per cent below 6 months in the former and 64.2 per cent below 6 months in the latter. The preponderance of older infants in groups 4 and 5, however, may be a factor in the complete lack of failures noted here.

The age distribution of the infants in whom the Schick test remained persistently positive is of interest in this regard. It will be noted that all but one of these twelve infants were under 6 months of age, a finding in agreement with the statements in the literature that young animals form antibodies badly. It is also noteworthy that with a potent toxoid most infants under 6 months of age can be rendered Schick negative rapidly.

TABLE 3.—*Age Distribution in Cases Persistently Positive*

1. M. N.	16 days	7. M. M.	3 months
2. M. A. T.	3½ weeks	8. E. B.	4 months
3. B. B.	2 months	9. M. L.	5 months
4. J. Mc.	2½ months	10. B. A.	5 months
5. B. H.	3 months	11. J. S.	6 months
6. M. B.	3 months	12. D. Mc.	21 months

The variability in antigenic potency of various batches of diphtheria toxoid is of great importance. It is obvious that considerable discrepancy in the results of immunization by the use of toxoid will appear when material of inferior antigenic potency is being marketed. Perhaps the outstanding advantage of this agent is the fact that a material of high antigenic potency is made available which is nontoxic, irreversible and very resistant to changes in temperature, aging and the like. Ramon [6] has pointed out the ease and accuracy of the determination of antigenic potency of diphtheria toxoid by the flocculation test. Together with Nélis [7] he has demonstrated the agreement between flocculation and clinical tests for antigenic potency. In a group of 269 children vaccinated with anatoxins of 7 and 4.5 units, respectively, 80 per cent were rendered Schick negative, and in 293 parallel cases in which anatoxins of 16 and 12.5 units were employed, 94.2 per cent were rendered Schick negative in from twelve to fourteen days. These results are strikingly similar to those noted in our babies.

In general, it may be said that the five groups of infants, while differing from one another slightly in some respects, are nearly enough parallel to act as test groups for the various toxoids used. The discrepancy

3. Glenny, A. T.: The Principles of Immunity Applied to Protective Inoculation Against Diphtheria, J. Hyg. **24**: 301 (Dec.) 1925.
4. O'Brien, R. A.: Immunity Produced by the Schick Test, J. Path. & Bact. **29**: 320 (July) 1926.
5. Freund, Jules: Influence of Age on Antibody Formation, J. Immunol. **18**: 315 (April) 1930.
6. Ramon, G.: The Essential Properties of Diphtheria Anatoxin, French M. Rev. **2**: 13 (Jan.) 1932.
7. Ramon, G., and Nélis, P.: Essais d'immunisation active chez l'homme au moyen d'une anatoxine diphtérique de valeur antigène élevée, Compt. rend. Soc. de biol. **107**: 487 (June 5) 1931.

between the two series run on toxoid 3 and those with the remaining toxoids is so distinct that one is led to conclude that material 3 in the lots employed was of definitely lower antigenic potency than the other brands of toxoid that were tested.

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FURTHER STUDIES ON THE USE OF WHEAT BRAN AS A LAXATIVE

OBSERVATIONS ON PATIENTS

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AND
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In a previous paper [1] were reported studies of the laxative effects in healthy men of wheat bran and an acid-extracted product called "acid washed bran." These studies showed: (*a*) that wheat bran and "acid washed bran" possess demonstrable laxative power when tested on healthy men subsisting on known carefully controlled diets, (*b*) that there is a quantitative relationship between the fiber content of the diet and the degree of laxation prevailing in healthy men, and (*c*) that the laxative value of bran and bran products may be estimated fairly accurately from the fiber content. In view of the objections on the part of certain clinicians [2] to the use of bran as a laxative, it becomes of importance to determine the limitations, if any, of these reactions, which were the results of studies on healthy men.

It was believed that a study of the actual laxative performance of patients suffering from constipation when subsisting on diets of known fiber content would yield data of value. It is conceivable that many such patients are actually ingesting rations too low in roughage content and erroneously assuming that their roughage intake is adequate. There is the possibility that many cases of constipation are due to this cause and would show satisfactory laxation when the fiber intake was made adequate by ingestion of bran or other fiber-rich material. It is also conceivable that certain individuals with pronounced tendency to constipation are characterized by a particular bacterial flora or the presence of cellulase (?) capable of decomposing ingested fiber to an unusually high degree, and, as a result, these individuals actually lack fibrous roughage sufficient to stimulate normal eliminatory processes by the time the food residues reach the rectum. Such individuals might be regarded as requiring a higher "fiber minimum" than that found for the healthy men on whom the earlier studies were made. Careful observations of the degree of laxation prevailing when on diets of known fiber content, and tests of bran and bran products in such cases should yield much information suggesting the limitations of the results of the previous study and the validity of one or more of the possible explanations of constipation just given. The chief objective of the present investigation was the performance of such tests on patients suffering from constipation.

The expenses of this research were defrayed in part by a grant from the General Foods Corporation, New York.

From the Departments of Physiological Chemistry and of Internal Medicine, Yale University School of Medicine.

1. Cowgill, G. R., and Anderson, W. E.: Laxative Effects of Wheat Bran and "Washed Bran" in Healthy Men: A Comparative Study, J. A. M. A. **98**: 1866-1875 (May 28) 1932.
2. Alvarez, W. C.: Minnesota Med. **14**: 296 (April) 1931.

PLAN OF INVESTIGATION

Patients.—Six men, all of whom had suffered from constipation for a considerable period, were secured for this study. Brief summaries of clinical data of interest are here presented.

Mr. J., a medical student, aged 25, had suffered from constipation for four or five years. He averaged about nine stools in two weeks and was in the habit of taking a double dose of seidlitz powders about once in two weeks when especially costive. He ate more fruit and vegetables than the average person and stated that, if he ate nothing but fruit, his bowels would be regular. When costive, he suffered only from lassitude and from rectal spasm due to straining.

Mr. M., a medical student, aged 23, had been troubled with constipation for years. He averaged about five small stools a week but was able to go four or five days without a stool without exhibiting any symptoms. He ate very little fruit and vegetables, his diet consisting chiefly of meat, cheese, milk and bread.

Mr. E., aged 40, unemployed for some time, had suffered from constipation and indigestion for twenty years. During the past year the condition had become progressively worse. He had been taking various cathartics irregularly over a period of years. When costive, he suffered from epigastric distention, the feeling of a "lump in the stomach" and heartburn. He had taken a great deal of sodium bicarbonate for the gastric distress. Roentgenograms of the upper gastro-intestinal tract were negative. He ate but little fruit and green vegetables.

Mr. F., a laboratory assistant, aged 51, had been troubled with constipation for about fifteen years. He had suffered from occasional pain in the lower part of the abdomen and at infrequent intervals had a little indigestion. Over a period of years the patient had taken an enema three times a week. A series of roentgenograms of the gastro-intestinal tract yielded negative results. During the past six months the patient had been fairly comfortable on a low residue diet supplemented with liquid petrolatum and fluidextract of cascara sagrada daily.

Mr. C., a janitor, aged 33, never suffered from constipation until the past six months. During this period, at irregular intervals his bowels became costive and he then suffered from sharp pain in the left flank. The pain was probably due to a renal calculus in the left kidney pelvis which has subsequently been removed, with complete relief of the pain.

Mr. H., aged 35, unemployed, had suffered from chronic constipation since an appendectomy in 1926. It was impossible to estimate the degree of constipation, for the patient had taken cathartics almost daily over a period of five years. His stools had been small, hard, often coated with mucus, and painful to pass. At the beginning of this study the patient complained of a host of symptoms: gas and belching, pain in both lower quadrants, pain during defecation, a feeling as if his intestines were "raw," and nervousness and palpitation. Roentgenograms revealed some redundance and spasticity of the colon. Skin tests with more than 200 common allergens revealed a slightly positive reaction only to beans, beets and broccoli.

It is not our purpose to discuss the clinical aspects or the classification of cases of constipation. From the brief abstracts given it will be seen that, although the subjects were nearly all young men, several different types of constipation are represented. One would suspect that in Mr. M. the constipation was due to sedentary habits and a low roughage diet. Mr. H.'s case is a fairly typical example of the "irritable colon," a state midway between the states of spastic constipation and mucous colitis. Mr. C.'s case would perhaps be classified by some as an instance of "reflex constipation." The remaining three patients were troubled with simple constipation, although Mr. E. suffered from more than the usual amount of gastric symptoms of reflex origin.

Plan.—The patients subsisted on carefully selected and controlled basal diets throughout the entire period

of the test, namely, from fifty-seven to sixty-nine days, or approximately from eight to ten weeks. At intervals the basal diet was supplemented with the product under investigation. The plan of experimentation is summarized in table 1. A study of this table will reveal that in periods 1, 4 and 6 the basal diet alone was

TABLE 1.—*Plan of Experimentation* *

Period	Description of Experimental Period
1	Basal diet only. Fiber intake ranged from 30 to 38 mg. per kilogram of body weight daily. Pronounced constipation is characteristic of this level of fiber intake in healthy men
2	Basal diet plus an amount of commercial bran that would make the fiber intake approximate 50 mg. per kilogram of body weight per day. In normal men this level of fiber intake is associated with "once a day" movement
3	Basal diet plus an amount of commercial bran that would make the fiber intake approximate 90 mg. per kilogram of body weight daily. In healthy men this level of fiber intake is associated with satisfactory laxation.
4	Intervening period of subsistence on basal diet only until constipation resulted
5	Basal diet plus an amount of a processed † bran product that would make the fiber intake approximate 90 mg. per kilogram of body weight daily
6	Intervening period of subsistence on basal diet only until constipation resulted. Same as period 4
7	Basal diet plus fruits and vegetables so as to give a fiber intake of approximately 90 mg. per kilogram of body weight daily
8	Same as 7 and supplemented with one-half the amount of processed bran product that was used in period 5. The fiber intakes ranged from 108 to 113 mg. per kilogram of body weight daily.

* In the case of Mr. H., who presented the picture of "irritable colon," an attempt was made to subsist on the diet used in period 7, but this was unsuccessful; the patient's condition became worse, and therefore the tests with periods 7 and 8 were abandoned. Instead, the patient was given the basal diet plus an amount of dried powdered agar-agar approximately equal to the amount of commercial bran used in period 3. This was not well tolerated; when one half of this amount of agar was given, the patient's condition was interpreted as being "very satisfactory."

† By processed bran product is meant a material made from milled wheat bran mixed with other ingredients, chiefly sugar, so as to constitute a palatable food of the "bran breakfast food" type comparatively rich in crude fiber.

ingested, but only period 1 is called the basal period. There is a definite reason for this. In every case period 1 was at least six days long, and, taken with the preliminary period during which the exact amounts of the foods to be taken daily were being determined, gave a period of at least ten days (in one instance fourteen days) on the low fiber diet. We feel that this therefore constitutes a basal period in the real sense of the word. Periods 4 and 6, on the other hand, were not as long, being determined by the development of constipation and the patient's desire for some change that might improve laxation; in view of the earlier studies on healthy men we feel that in periods 4 and 6 there may have been some hang-over effect of the previous periods, and therefore we have called these periods intervening periods of subsistence on basal diet only.

Diet.—All meals were eaten in the laboratory. Representative samples of the foods used were analyzed for moisture and crude fiber.[3] The details of the diet were determined during a preliminary period in the same manner as that described in a previous paper.[1] As an illustration of the basal diet finally selected, we present in table 2 the rations used by Mr. J. in the basal periods and in period 7, when fruits and vegetables were used as the supplements.

The factor of hydration was controlled as in the previous study on healthy men by measurement of the normal daily intake of fluid during the preliminary period, selection of a desirable daily volume of fluid intake, and adherence to this standard thereafter throughout the experiment. In this way each person conformed to his own desired standard with respect to fluid intake.

3. Official methods of the Association of Official Agricultural Chemists, 1925, were used.

Other Data.—The men were asked to defecate, as far as possible, only when there was the definite urge to do so. They were provided with cardboard cartons so that any stools passed at home could be saved and brought to the laboratory. All dejecta were weighed as far as possible immediately on passage. When passage took place at home or elsewhere the tare weight of the cartons, which was known, was considered in arriving at the true weight of the stool. The specimens were dried in a current of warm air, the samples belonging to a given experimental period collected, mixed, ground and analyzed for moisture and crude fiber. Wood charcoal (norite) was used to differentiate the stools of different periods. Each patient recorded the time that each stool was passed and his subjective impressions with respect to ease of passage and similar observations.

RESULTS

Subjective Impressions.—Each of the individuals interpreted his laxative condition while on the basal diet alone—periods 1, 4 and 6 (table 1)—as one of pronounced constipation. This agrees with the results obtained with healthy men in the earlier studies, in which it was observed that a daily fiber intake of from 30 to 40 mg. per kilogram of body weight was associated with marked constipation. The degree of discomfort experienced by the men in the present investigation seemed to vary somewhat. In period 2, when commercial bran was added to the diet in amounts sufficient to bring the daily level of fiber intake up to about 50 mg. per kilogram of body weight, all the men except Mr. H. reported improvement but with their laxative condition being still far from ideal. In period 3, in which the basal diet was supplemented with still more commercial bran so as to make the level of fiber intake approximate 90 mg. per kilogram daily, all the men again, with the exception of Mr. H., experienced a distinct improvement in laxative condition and stated

TABLE 2.—*Diets Used by Mr. J. (Body Weight, 83.2 Kg.)*

Basal Periods		Period 7	
Food	Amount per Day	Food	Amount per Day
Eggs	2 boiled	Eggs	2 boiled
Bacon	75 Gm.	Bacon	75 Gm.
Hamburger steak	150 Gm.	Hamburger steak	150 Gm.
Bread, white	270 Gm.	Bread, white	360 Gm.
Butter	90 Gm.	Butter	90 Gm.
Milk	400 cc.	Milk	400 cc.
Cocoa	200 cc.	Cocoa	200 cc.
Orange juice	100 cc.	Orange juice	100 cc.
Ice cream	75 Gm.	Ice cream	75 Gm.
Ketchup	25 Gm.	Ketchup	25 Gm.
Water	1,550 cc.	Water	1,500 cc.
Jelly	250 Gm	Potatoes	165 Gm.
Crackers, soda	36 Gm.	Peas	150 Gm.
Cheese, American cream	50 Gm.	Peaches	120 Gm.
Banana	100 Gm.	Celery	50 Gm.
		Raisins	50 Gm.
		Tuna fish	50 Gm.
Fiber content, 2.78 Gm., or 33 mg. per kilogram		Fiber content, 7.32 Gm., or 88 mg. per kilogram	

In period 2, to get a total fiber intake of about 50 mg. per kilogram per day, 18 Gm. (⅔ ounce) of commercial bran was taken as a supplement at the noon meal.

In period 3, to get about 90 mg. per kilogram per day of fiber 44 Gm. (1.6 ounces) of commercial bran was taken as a supplement, one half at the noon lunch and the remainder at the evening meal.

In periods 5 and 8, 55 Gm. (2 ounces) and 28 Gm. (1 ounce), respectively, of a processed bran product was taken as a supplement daily at the evening meal.

that conditions were satisfactory, judging from subjective impressions. The exceptional individual, Mr. H., it should be remarked, presented the picture of "irritable colon"; he was more comfortable when receiving the basal diet alone than when receiving any supplements designed to increase the fiber content.

After an intervening period of subsistence on the basal diet alone until constipation resulted (period 4), the ration was supplemented with a processed bran product in amounts sufficient to bring the total daily fiber intake up to about the 90 mg. per kilogram level. With the exception of Mr. H., all the men reported their laxative conditions as being satisfactory, but with a slight difference in favor of commercial bran. On the other hand, they also reported that the processed bran was much easier to eat in appreciable quantity, and for that reason greatly to be preferred.

After another intervening period on the basal diet alone, a trial was made of a ration again containing about 90 mg. of fiber per kilogram daily but with almost all the fiber furnished by fruits and vegetables. An example of the type of ration used here is given in table 2.

It is important to note that Mr. H., with the "irritable colon," could not tolerate this diet and therefore had to return to subsistence on the basal diet alone, as explained in the footnote in table 1. Of the remaining five persons, two—Mr. F. and Mr. C.—considered that their laxative condition was satisfactory while on the regimen of fruits and vegetables. The other three men did not regard their condition as satisfactory and desired to supplement this diet with the processed bran product and therefore took daily one half of the quantity that had been taken during period 5 (table 1). As a result of this addition, the laxative conditions of these men improved and were interpreted subjectively as "very satisfactory."

Interval Between Defecations.—In our previous studies it was pointed out that in healthy men the average duration of the interval between defecations is a rough measure of the extent to which laxation is taking place. It becomes of interest, therefore, to inquire as to the duration of this interval in the patients here studied. In table 3 are given the averages of these intervals in hours yielded by the data of the present investigation. In the last column of the table are presented the averages of the data from comparable earlier experiments, which were performed on healthy men. It should be stated that the data from the previous investigation on healthy men showed much less variation than the data obtained from the present study made on individuals suffering from constipation.

It will be noticed in table 3 that in the case of Mr. J. the intervals were not far from twenty-four hours, representing a laxation rate of once a day, except in period 6, when there was marked constipation, indicated by the average interval of fifty-four hours, and in period 8, when the highest level of fiber intake was tried and the interval thereby reduced to sixteen hours. Mr. J. had long been troubled with constipation and had endeavored to meet this condition by regulating his diet. We are of the opinion that he may have conditioned himself more or less to a once-a-day regimen, and therefore, over much of the earlier part of the present study, was making an effort to secure a bowel movement every day. This supposition is supported by the fact that he exhibited this rate of laxation even when the average weight of the fresh stool was as low as 38 Gm. (table 4). It is possible that the experimental regimen and our emphasis on the importance of defecating only when there was a definite urge to do so was to some extent responsible for the long interval of fifty-four hours obtained in period 6.

The results with Mr. M. are interesting because of the extremely long interval of 77 hours recorded for period 1, associated with the very low laxation rate[1] of 0.3, the lowest encountered in these studies. The effect of raising the level of daily fiber intake is evident as one examined the figures for Mr. M. for all periods. It will be noticed that the average duration of the interval was finally reduced to sixteen hours by the ingestion of as much as 113 mg. of fiber per kilogram daily.

In the case of Mr. E., the average interval between movements was quite definitely related inversely to the level of fiber intake. There is a definite suggestion that the ingested fiber of fruits and vegetables, period 7, did not function very well as a roughage; when the processed bran product was taken, period 8, the result was about the same as that obtained previously in period 5, when this bran product alone was tested.

In the case of Mr. F. the results were about the same as those obtained with Mr. E. except with respect to the regimen of fruits and vegetables. Mr. F. regarded his laxative condition during period 7 as quite satisfactory, although the average interval was twenty-four hours.

TABLE 3.—*Average Duration in Hours of the Interval Between Defecations*

Period*	Person J.	M.	E.	F.	C.	H.	Average†
1. Basal diet only; fiber intake 30-38 mg. per Kg. per day	19	77	38	29	17	33	30
2. Basal diet plus commercial bran with the fiber intake at about 50 mg. per Kg. per day	23	47	32	24	18	14	24
3. Basal diet plus commercial bran with the fiber intake at about 90 mg. per Kg. per day	22	25	21	19	11	17	19
4. Basal diet only; same as period 1	24	36	32	21	22	35	30
5. Basal diet plus processed bran product with fiber intake about 90 mg. per Kg. per day	29	23	28	17	14	16	19
6. Basal diet only; same as 1 and 4	54	46	40	24	19	..	30
7. Fruit and vegetable diet; the fiber intake about 90 mg. per Kg. per day	21	31	40	24	9	..	19
7. Same as 7 and supplemented with the processed bran product; fiber intake 108-113 mg. per Kg. per day	16	16	24	..	..	..	..

* An abbreviated form of the periods is given in this table and in tables 4 and 5. A more detailed description is given in table 1.
† Average for healthy men at this level of fiber intake.

Mr. C.'s was classified as a possible "borderline irritable colon" case, because of the great number of stools passed, revealed by the data contained in table 3, in which the average interval was fairly constant and hardly indicative of constipation. Nevertheless, this patient experienced discomfort during the basal periods and considered his condition much better when the diet was supplemented with the commercial bran, the processed bran product, or the fruits and vegetables. It is quite possible that the patient was more sensitive than are healthy men to the presence of material in the large intestine and therefore received the urge to defecate oftener. The improvement, which, he believed, was associated with increased level of fiber intake, may possibly have been due to the slightly greater average weight of stool passed at each movement; the passage of the larger stool may have given a greater sense of complete emptying, which seems to be an important subjective factor, judging from the earlier observations on healthy men.

From this brief summary of the data in table 3 it appears that in three of the cases (M., E. and F.) the relation between the duration of the interval between defecations and the level of fiber intake is the same

as that occurring in healthy men, but the average duration in hours tends to be slightly longer in the case of these patients. In the three remaining patients, this relation is not exemplified, but special factors appear to be playing a rôle.

Amount of Intestinal Contents Eliminated.—In the earlier studies performed on healthy men it was noticed that an increase in laxation is accompanied by the elimination of greater amounts of intestinal material; and from this work there came the suggestion that the urge to defecate may be due to a certain extent to the existence of what might be spoken of as a "threshold mass" in the lower bowel. In view of the observations of Hines, Lueth and Ivy [4] indicating a lowered sensitivity of the rectum of patients suffering from chronic constipation, one might expect a failure of the "threshold mass" idea to apply to the patients here studied. In table 4 are given the average weights of dejecta passed daily and for each movement, the rates of laxation, the averages for the different experimental periods, and comparable data yielded by the earlier studies.

TABLE 4.—*Amount of Intestinal Content Eliminated* *

Period	Person J.	M.	E.	F.	C.	H.	Average	Average†
1. Basal diet only; fiber intake 30-38 mg. per Kg. per day	49	37	106	96	126	54	78	94
	38	124	167	115	93	67	101	111
	1.17	0.3	0.64	0.83	1.36	0.8		
2. Basal diet plus commercial bran with the fiber intake at about 50 mg. per Kg. per day	125	123	110	136	131	98	121	114
	116	246	183	163	110	67	146	111
	1.08	0.5	0.9	0.8	1.27	1.54		
3. Basal diet plus commercial bran with the fiber intake at about 90 mg. per Kg. per day	151	241	222	170	209	127	187	187
	126	271	200	156	112	85	158	151
	1.20	0.89	1.11	1.25	1.90	1.50		
4. Basal diet only; same as period 1	67	76	95	140	79	91	91	94
	90	114	159	125	95	91	112	111
	0.75	0.67	0.60	1.12	0.83	1.0		
5. Basal diet plus processed bran product with fiber intake about 90 mg. per Kg. per day	154	176	201	201	195	127	176	
	133	176	201	147	111	85	142	
	1.17	1.0	1.0	1.44	1.75	1.50		
6. Basal diet only; same as 1 and 4	134	55	115	135	103	..	108	94
	223	137	153	135	73	..	144	111
	0.6	0.4	0.75	1.0	1.4			
7. Fruit and vegetable diet; the fiber intake about 90 mg. per Kg. per day	101	218	113	159	234	..	165	
	87	262	193	177	72	..	158	
	1.16	0.83	0.58	0.9	2.56			
8. Same as 7 and supplemented with the processed bran product; fiber intake 108-113 mg. per Kg. per day	214	183	183	..	..	..	193	
	128	183	183	..	..	..	165	
	1.67	1.0	1.0					

* The first figure given in each group indicates the average weight of material in grams eliminated per day; the second gives the average weight in grams eliminated at each defecation; the third indicates the rate of laxation or number of movements per day. For example: in period 1, J. eliminated 49 Gm. of stool per day, an average of 38 Gm. at each movement, and showed a laxation rate of 1.17 movements per day.

† Average of previous study on healthy men.

If one compares the levels of fiber intake (first column of table 4) with the average weights of the amount of material eliminated daily (next to last column, table 4), a definite parallelism will be noted. This agrees with the results obtained in the earlier study on healthy men and confirms the view that the amount of intestinal excreta passed daily can serve as a criterion of the prevailing state of laxation.

When the data in table 4 for the amount of material eliminated at each movement are examined, some interesting variations are noticed. For example, Mr. M. appears to have had a remarkable capacity for retention of material in the lower bowel. In periods 2, 3 and 7, the average weights of his stools were 246, 271 and 262 Gm., respectively, weights considerably greater than those yielded by the healthy men in the previous studies, the greatest of which was only 158 Gm. Other high figures that might be cited are those for Mr. J. in period 6, and Mr. E. for periods 3, 5 and 7. These results support the observations of Hines, Lueth and Ivy and are doubtless to be attributed to the diminished sensitivity of the lower bowel to the presence of fecal material which some cases of constipation show.

It will be noticed that these unusually high average weights of stools were associated with low rates of laxation, although the amounts of material eliminated daily were comparable to those observed in the previous studies and were indicative of definite change in laxation. This suggests that in the interpretation of the data of the rate of laxation it is important to consider also the average weights of the dejecta as well as the amounts eliminated daily.

In conclusion it appears that, with respect to the relation of the level of fiber intake to the amount of intestinal contents eliminated, the results yielded by these patients are not essentially different from those obtained earlier from healthy men. There is evidence indicating that in these cases of constipation there is a decreased sensitivity of the lower bowel to the presence of fecal material. In these instances, nevertheless, commercial bran and the processed bran product were demonstrated to have definite laxative power.

TABLE 5.—*Percentage of Ingested Crude Fiber that Disappears During Passage Through the Alimentary Tract*

Period	Person J.	M.	E.	F.	C	H.	Average	Average*
1. Basal diet only; fiber intake 30-38 mg. per Kg. per day	92	88	81	88	79	84	85	60
2. Basal diet plus commercial bran with the fiber intake at about 50 mg. per Kg. per day	61	70	74	56	72	71	67	44
3. Basal diet plus commercial bran with the fiber intake at about 90 mg. per Kg. per day	37	33	37	36	34	64	35†	
4. Basal diet only; same as period 1	80	70	87	62	84	81	77	60
5. Basal diet plus processed bran product, with fiber intake about 90 mg. per Kg. per day	48	34	50	51	43	54	48	
6. Basal diet only; same as 1 and 4	86	75	87	80	75	..	80	60
7. Fruit and vegetable diet; the fiber intake about 90 mg. per Kg. per day	85	50	71	85	55	..	69	
8. Same as 7 and supplemented with the processed bran product; fiber intake 108-113 mg. per Kg. per day	71	74	67	..	..	..	70	

* Average of data from healthy men.

† Data for Mr. H. were omitted in calculating this average.

Fiber Intake and Laxation.—In the earlier studies on healthy men it was found that there exists a definite quantitative relationship between the amounts of crude fiber ingested daily and the laxative performance. On the basis of these results it was suggested that there exists what might be called a "physiologic fiber or roughage minimum." It becomes of interest, therefore, to see to what extent the data yielded by the present study confirm or disagree with this suggestion.

In table 5 are given for each person the data indicating to what extent the ingested fiber disappeared during

4. Hines, L. E.; Lueth, H. C., and Ivy, A. C.: Motility of the Rectum in Normal and Constipated Subjects, Arch. Int. Med. **44**: 147 (July) 1929.

its passage through the alimentary tract. Comparison of these figures with those for the fiber intake (corresponding periods, column 1) indicates very clearly that a much smaller fraction of the supplementary fiber—that of commercial bran, the processed bran product and the fruits and vegetables—disappeared during alimentary passage than was the case with the fiber of the basal diet. In the last column of table 5 are given some comparable data taken from the previous studies on healthy men. Comparison of these figures with those yielded by the present investigation (next to the last column) indicates very definitely that the fiber of the basal diet suffered a much greater decomposition in the case of the patients of the present study than was the case with the healthy men studied previously. Whatever the cause of this may be, possibly a particular bacterial flora, it seems reasonable to attribute the pronounced tendency to constipation which these patients exhibited to this fact: that too small a fraction of the fiber ingested as part of the customary diet remains intact in the alimentary tract to function satisfactorily in a mechanical way as roughage to stimulate the normal eliminatory process.

In view of these results, the stability of the fiber, ingested as part of the commercial bran, the processed bran product and the fruits and vegetables under the same conditions, becomes important to determine, for on the results of such determinations depend to a very high degree the values of these substances as laxatives for such cases. In making such determinations it is necessary to assume that, during the period when the test supplement is being ingested, the same fraction of fiber of the basal diet remains intact after alimentary passage as was the case in the previous period when only the basal diet was being consumed. As the time during which the fiber remains in the intestinal canal is undoubtedly a factor determining the extent to which decomposition takes place, and as the use of any effective supplement shortens the time somewhat, this assumption cannot be entirely accurate. In the absence of any alternative plan by which to make the desired comparison, this method, even in the face of the uncertain assumptions which it involves, has been followed.

An illustrative calculation should suffice to make clear the method used: In period 1, Mr. J. ingested a total of 18.54 Gm. of crude fiber, and eliminated by way of the stools only 1.54 Gm., or 8.3 per cent. In period 2 he ingested a total of 64.96 Gm. of fiber, 38.92 Gm. of which came from the basal diet and 25.9 Gm. from the commercial bran supplement. The total output during this period was 39.4 per cent, or 25.57 Gm. If one assumes that 8.3 per cent of the fiber of the basal diet was eliminated in this period, as was the case during the first period, then in period 2 there would be 3.23 Gm. of fecal fiber contributed by the basal diet. On subtracting this amount from the total output for the period, one obtains 22.34 Gm. of fiber contributed by the supplement, which in this case was commercial bran; this constitutes 86 per cent of the bran fiber that was ingested. Therefore, one may say that only 8.3 per cent of the fiber of the basal diet was eliminated, in contrast to 86 per cent of the fiber of the commercial bran. In all of the calculations the results of which are summarized in table 6, the data obtained in the basal period 1 were taken as properly representing the influence of the basal diet alone. For reasons already given, we do not think that in periods 4 and 6 the maximum effect of subsistence on the basal diet alone was obtained.

The results of the calculations made to determine the relative stability in the alimentary tract of the various sources of fiber used in this investigation are summarized in table 6.

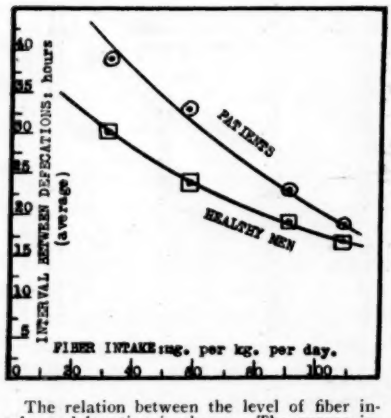
In column 3 of table 6 it will be noticed that in basal period 1 the amount of ingested fiber recovered in the stools was quite low, ranging from 8 to 21 per cent. These figures should be compared with those for period 2 in column 4, which represent the percentage recoveries of the commercial bran fiber which supplemented the basal diet. In period 3, during which the amount of commercial bran ingested was such as to make the total fiber intake approximate 90 mg. per kilogram daily, in contrast to 50 mg. during period 2, it will be noticed that, with the exception of Mr. H., the patient with the "irritable colon," about 94 per cent of the fiber of the ingested bran was recovered in the stools. The figures for period 5, during which the processed bran product was tested at the 90 mg. level of fiber intake, are somewhat variable and indicate somewhat smaller recoveries of ingested supplementary fiber. The results obtained with the diet in which fruits and vegetables furnished the supplementary fiber (period 7) are worthy of consideration. The average is 20 per cent, which is only slightly greater than the average for basal period 1 and identical with that for intervening period 6. From this it appears that in these

TABLE 6.—*Percentage of Ingested Fiber Recovered in Stools*

Period	Person	Per Cent of Ingested Fiber: From Basal Diet Only	Per Cent of Ingested Fiber: From Supplement Used
1. Basal diet only	J.	8.3	
	M.	12	
	E.	19	
	F.	12	
	C.	21	
	H.	16	
		15 av.	
2. Commercial bran as supplement to give about 50 mg. fiber per Kg. per day	J.	..	86
	M.	..	50
	E.	..	55
	F.	..	88
	C.	..	38
	H.	..	57
3. Commercial bran as supplement to give about 90 mg. fiber per Kg. per day	J.	..	95
	M.	..	94
	E.	..	93
	F.	..	..
	C.	..	96
	H.	..	50
4. Basal diet only	J.	21	
	M.	30	
	E.	13	
	F.	38	
	C.	16	
	H.	20	
		23 av.	
5. Processed bran product as supplement to give about 90 mg. fiber per Kg. per day	J.	..	71
	M.	..	86
	E.	..	77
	F.	..	58
	C.	..	84
	H.	..	67
6. Basal diet only	J.	14	
	M.	25	
	E.	13	
	F.	20	
	C.	25	
	H.	..	
		20 av.	
7. Fruits and vegetables so as to give about 90 mg. fiber per Kg. per day	J.	..	15
	M.	..	5
	E.	..	29
	F.	..	15
	C.	..	35
	H.	..	..
			20 av.
8. Same as 7 but supplemented by one half the amount of processed bran product used in 5	J.	..	77
	M.	..	90
	F.	..	50

patients the fiber of the fruits and vegetables used as supplements suffered about the same degree of decomposition during alimentary passage as that of the foods used in the basal ration. This emphasizes further the fact that the fiber contained in the foods ordinarily used was more readily broken down during passage through the alimentary tracts of these patients than is true of healthy men, and on this fact one may rest an explanation of the great tendency to constipation which characterized these individuals. Since the fiber of commercial bran and of the processed bran product resisted this decomposition to a very considerable degree, and since the use of the materials was not attended with undesirable symptoms of any kind, these products may be considered to have special value as sources of roughage for such patients.

It will be noticed in table 6, by a comparison of periods 3 and 5, column 4, that the fiber of the commercial bran was somewhat more resistant to alimentary decomposition than that of the processed bran product. This finding agrees with the others pertaining to subjective impressions, amounts of material eliminated and rates of laxation. All of the men reported, however, that it was not easy to ingest appreciable quantities of commercial bran; the processed bran product, on the other hand, presented no such difficulty and therefore was greatly to be preferred as the source of supplementary fiber. It is suggested that perhaps the slight difference here noted may be related to the fact that fiber of the processed product is in a more finely divided state than that of the commercial bran and that, therefore, when the fiber of the processed product is suspended in the semiliquid chyme of the intestinal contents, more surface is available to the action of bacteria, or special ferments, with a resultant greater decomposition. Gross examination of the stools indicated very clearly that, when commercial bran was ingested, much of the material escaped even simple mechanical degradation: numerous flakes of the bran appeared in the dejecta. If this explanation is correct, the size of the fiber particle in the food is a variable influencing the laxative value of the food.



The relation between the level of fiber intake and laxation is shown. The curves indicate that for a given fiber intake laxation was poorer in the patients than was the case in the healthy men.

It will be noticed that in period 8 the processed product was tried as a supplement to the diet of fruits and vegetables and proved effective in promoting satisfactory laxation. Evidently, then, the fiber of the more palatable, easily ingested processed bran product here studied was sufficiently stable in the alimentary tract to give this material definite value as a supplementary source of fiber taken to promote laxation.

In table 7 are presented data from the previous investigation, which are believed to be fairly comparable to those obtained in the present study. The data from Mr. C. and Mr. H. were not considered here because both of these men gave some evidences indicative of so-called irritable colon; the remaining four patients, as described elsewhere, suffered from simple constipation only and therefore may properly be compared as a group with the healthy men studied previously.

The data contained in table 7 have been plotted on coordinate paper with the result presented in the accompanying chart. The plot shows that in the two groups of men the same general relation exists between the level of daily fiber intake per kilogram of body weight and the laxative performance as indicated by the average interval between defecations; however, in the case of the patients, as indicated by the higher position of the curve, laxation was poorer than in the case of the healthy men, thus suggesting the existence of definitely higher fiber or roughage minima characteristic of the patients. The study of the fiber intake and output (table 5) indicates that the chief reason for this higher "fiber minimum" in the case of these patients lies in the greater destruction of ingested food fiber during passage through the gastro-intestinal tracts of these individuals. For example, in table 5, 85 per cent of the ingested fiber of the basal diet disappeared during alimentary passage in contrast to 60 per cent for the healthy men, as shown by a comparison of the figures in the last two columns of table 5.

TABLE 7.—*Comparison of the "Physiological Fiber Minima" of Healthy Men and Patients Exhibiting Simple Constipation*

Fiber Intake per Day, Mg. per Kg.	Average Duration of Interval Between Defecations	
	Healthy Men, Hours*	Patients, Hours†
21 to 42 (average 31)	30	41
51 to 65 (average 58)	24	32
82 to 100 (average 90)	19	22
103 to 112 (average 107)	17	19

* Average of results from previous studies.
† Patients C. and H. were not considered because they presented some evidence of "irritable colon."

It will be noticed in the chart that at the highest levels of fiber intake studied, the two groups tend to exhibit almost the same degree of laxation. In this connection it should be remembered that at these high levels most of the ingested fiber was contributed either by commercial bran or by a processed bran product and therefore was present in a form that resisted decomposition in the alimentary tract to a very high degree (table 6). Under these conditions, therefore, the two groups might be expected to show about the same degree of laxation. In general, it appears reasonable to conclude that these data yielded by the patients suffering from simple constipation confirm the hypothesis that there is a physiologic fiber or roughage minimum intake which is necessary in order to promote satisfactory laxation.

TESTS WITH AGAR-AGAR IN A CASE OF "IRRITABLE COLON"

Mr. H. presented the general picture of so-called irritable colon. In all the experiments with the basal diet, commercial bran, processed bran product, and fruits and vegetables, the patient was most comfortable when subsisting on the basal diet alone (periods 1, 4 and 6), in spite of the fact that his laxative condition during these basal periods was one of definite constipation. It should be emphasized here that the bran products were not unique with respect to their undesirability in this case; a diet having the same fiber content but with the fiber furnished almost entirely by

fruits and vegetables was equally unsatisfactory. Evidently, then, fiber itself, regardless of the source, is contraindicated in such a case.

Alvarez believes that agar-agar is the best source of roughage to use clinically. Many clinicians have gained the impression that the fibrous roughage in certain foods is present in large discrete particles and that the undesirability of these foods for certain clinical cases is related to this. The expressions "bland diet" and "smooth diet" are generally understood to mean a diet free from "coarse" fiber in contrast to diets into which these "coarse" foods enter. Celery, fresh sweet-corn and other vegetables are instances of some commonly recognized "coarse" foods. On the other hand, agar-agar forms a gel when mixed with water and therefore presumably exerts its function as an indigestible roughage in the form of a soft jelly-like mass. In view of these considerations, it seemed desirable to test the efficacy of agar-agar as a laxative on Mr. H.

At first the agar was added to the basal diet in such an amount as to make the daily roughage intake equal to about 90 mg. per kilogram of body weight; the patient could not tolerate such a large intake. The dose of agar was then reduced so as to make the total roughage intake equal to about 50 mg. per kilogram daily. Under these conditions Mr. H. was more comfortable than he had been before. From these admittedly few observations, made, however, under carefully controlled dietary conditions, it is clear that there may be a real basis for the contention of Alvarez that agar-agar has definite clinical value as a laxative. It is also clear that the dosage of even this product is important, too much of it being as undesirable as too little. Further work should be done on this problem.

COMMENT

At the beginning of this investigation, one of the authors (A. J. S.) was quite skeptical as to the value of bran in the treatment of constipation. He felt that the work on healthy individuals [1] was of interest but was probably not applicable to patients suffering from constipation. He had seen many patients who said that they had "tried bran" without relief of their constipation. He had seen some patients whose symptoms were quite definitely aggravated by the use of bran and other forms of roughage; and he was acquainted with the literature reporting cases of intestinal obstruction due presumably to bran. It is quite likely that because of unsatisfactory results in some cases he had swung to the extreme view held by many physicians at the present time that bran is contraindicated in all cases of constipation.

Observations on these six subjects suffering from constipation indicate that in certain cases bran will induce quite satisfactory laxation. At this point we must again emphasize the fact that all of our subjects were free from any organic disease of the gastrointestinal tract, with the possible exception of Mr. H., whose case would be diagnosed as "irritable colon." It is interesting that he was the only one whose symptoms were aggravated by bran, whether in the crude form or in a milled product or by the fruits and vegetables tried; he was most comfortable when subsisting on the basal low-roughage diet. We agree with Alvarez that a bowel which is ulcerated, narrowed or highly irritable should not be subjected to the stimulus and added burden of highly indigestible material. On the other hand, only a small percentage of individuals complaining of constipation suffer from organic diseases thus falling outside the major group to which the "physiologic roughage minimum" principle applies. Most individuals treat themselves for costive tendencies, perhaps employing drastic measures for extended periods, the physician being consulted only when other symptoms appear or when complications ensue. At this stage, roughage may do more harm than good.

Our investigations indicate that bran was a satisfactory source of roughage in five out of the six cases of constipation studied. Four out of the five patients were definitely convinced of the value of bran in their cases as a result of their experience in this study and have continued its use for the past five months with excellent results. The fifth patient could not carry bran on a camping trip but intends to use it during the coming year. Mr. H., the sixth patient, is now quite comfortable on a bland diet plus agar-agar.

It has been argued that it is absurd to prescribe bran or bran products as sources of roughage when one merely needs to have the patient eat more green vegetables and fruit to supply the needed bulk. In two of our patients, Mr. F. and Mr. C., a diet high in vegetable roughage was just as satisfactory as the use of bran. On the other hand, three of the patients were not comfortable until they had added processed bran to the high fruit and vegetable diet. The study of the fiber content of the stools indicates that most of the vegetable fiber was being destroyed in the intestine. This not only confirms earlier studies reviewed by Schmidt and Strasburger,[5] showing that there is a variable utilization of the cellulose contained in different vegetables, but also emphasizes that the utilization of the fiber of the same vegetable may vary markedly in different individuals. Mr. M., stated that he did not like vegetables and rarely ate them. He definitely preferred to take his roughage in the form of 2 ounces (60 Gm.) of the processed bran product rather than as 150 Gm. of peas, 120 Gm. of peaches, or 50 Gm. of raisins (table 2), for example.

SUMMARY AND CONCLUSIONS

The laxative values of commercial wheat bran, a processed bran product, and a mixed diet of fruits and vegetables were studied in a group of six male patients exhibiting varying degrees of constipation. The patients subsisted on carefully selected diets the fiber contents of which were determined by chemical analysis. The several criteria of laxative action developed in studies on healthy men were used in the present investigation.

In all but one instance, the commercial bran and the processed bran product, when fed in such amounts as to bring the daily fiber intake up to 90 mg. per kilogram of body weight, were very efficacious in correcting the constipation, in contrast to fruits and vegetables, which proved to be satisfactory in only two cases. The commercial bran proved to be slightly superior to the processed bran product but was much less palatable and proved difficult to ingest in reasonable quantity; no difficulty whatever was experienced in eating the processed product. It is suggested that the smaller size of the fiber particle in the processed bran product is a factor tending to decrease slightly its laxative value. In the three cases in which satisfactory laxation was not secured when the patient was subsisting on the diet of fruits and vegetables, addition of the processed bran product resulted in the desired improvement.

5. Schmidt, E. A., and Strasburger, Julius: Die Fäzes des Menschen, ed. 3, Berlin, August Hirschwald, 1910, pp. 211-216.

In each of the five cases that presented constipation without any other symptoms, it was observed that the fraction of the fiber of the basal diet and of the fruits and vegetables that remained intact after passage through the alimentary tract was much less than was the case with the healthy men studied in the earlier investigations. It is suggested that the tendency to constipation which these patients exhibited was due to this fact. A diet of common foods that will suffice to promote satisfactory laxation in healthy persons evidently will do so in some of these patients but not in all, and, therefore, the latter require some form of roughage that will resist all decomposition. Both commercial wheat bran and the processed bran product tested in this study were found to be satisfactory sources of fibrous roughage for these patients.

In the one case presenting the picture of so-called irritable colon, fibrous roughage in any form, whether commercial wheat bran, a processed bran product, or fruits and vegetables, was contraindicated. Agar-agar, on the other hand, when fed so as to give a roughage intake of about 50 mg. per kilogram daily, gave very satisfactory results; when fed at a 90 mg. level of daily intake, it could not be tolerated. This observation in a single case suggests the advisability of further study of the clinical value of agar as a source of roughage.

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DOES THE GUINEA-WORM OCCUR IN NORTH AMERICA?

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The guinea-worm, Dracunculus medinensis, has been reported from man in North America in a total of ten published cases. In four of the cases, D. medinensis was collected from persons who had been abroad in countries in which guinea-worm is known to be endemic and who either certainly or possibly became infested while abroad. In six other cases the evidence published in connection with the cases indicates that the supposed D. medinensis was actually something else. The net result of a consideration of the published literature is a total lack of human cases that can be accepted as originating in the United States.

The four cases of D. medinensis infestation reported from the United States with evidence that the infestation was or might have been acquired abroad, are as follows:

Severance [1] reported a case in a white sailor who had been in Mogador, Morocco, six years previously. The worm made its appearance while the patient was en route from New Orleans to New York. The time required for the worms to mature is generally stated to be from nine to fourteen months, but sometimes a considerably longer period elapses before the worm makes its presence known by appearing on the surface of the body. The origin of this case must be considered problematic.

Buist [2] added two cases in which the patients had recently returned from East India to South Carolina. The first case was that of an Englishman, aged 34, who had shipped six months previously from a port in India to Liverpool, and a few days after his arrival in England had shipped to Charleston, S. C. While this man was en route between Liverpool and Charleston, the worm made its appearance between the heel and the inner malleolus and was extracted from the lesion; the worm was 16 inches (40 cm.) long. In the second case, a Danish seaman, aged 28, had also recently returned from India. In this case the worm made its appearance near the inner malleolus and was extracted; it was 18 inches (45 cm.) long. These are evidently valid cases of D. medinensis, with infestation acquired abroad.

Francis [3] added the fourth case, that of a male black native of the Gold Coast, Upper Guinea, in whom the worms made their appearance while the patient was en route to the Buffalo Exposition for exhibition purposes. The patient had a previous history of having had three worms appear on the feet. While he was in the United States, five worms, from 12 to 26 inches (30 to 65 cm.) long, appeared on the feet and ankles. This also is a valid case, with infestation acquired abroad.

The six cases in which the thing reported as D. medinensis appears to have been something else are as follows:

Barkan [4] described a case of a man, aged 30, a native of Adelaide, Australia, who entered a hospital shortly after arriving in California. The patient stated that he had had trouble with his eyes for years. The left eye was found to contain a stationary foreign body which was removed surgically, together with that part of the iris to which it was attached. Subsequent examination of the specimen by Professor Knapp corroborated the physician's diagnosis of Filaria medinensis. It now appears probable that this case is a record of the occurrence of Loa loa, a more common parasite of the eye, which in the past has at times been confused with D. medinensis, the parasite probably being of foreign origin in this case.

A case was reported by Jarvis [5] in which a small, bristle-like structure, 1½ inches long, was obtained from under the skin of the foot of a patient at Fortress Monroe, Va. The author stated that the worm appeared similar to a "hog bristle." This is probably a case of spurious parasitism.

Walker [6] reported a case, which he attributed to D. medinensis, in a 3 months old child in Arlona (?), Putnam County, Ga. He described the case as follows:

> The only child was apparently healthy until about three months after birth, when a small red speck was noticed on the gluteal muscles, at or near the rim of the pelvis, which gradually enlarged to the size of a pea, of oval shape; and in about two weeks after its discovery it began to elongate and to descend the thigh, making perhaps the distance of two lines a day. . . . The cordlike object was well defined under the skin. . . . The worm, as I shall call it, went on in a zigzag course downwards, nearly passing around the limb. . . . The anterior part, for perhaps an inch, was of a bright scarlet color and grew paler upwards. . . . The head had reached the lower half of the leg, I cut across it in several places and one cut was made half an inch from the head, and from this cut there oozed out a few drops of a light, thin yellowish fluid.

From the Zoological Division, Bureau of Animal Industry, United States Department of Agriculture.

1. Severance, C. E.: History of a Case of the Dracunculus or Guinea-Worm (Filaria Medinensis), Am. M. Times **1**: 165-166, 1860.
2. Buist, J. B.: Cases of Filaria Medinensis, Guinea-Worm or Dracunculus, Tr. South Carolina M. A., sixth meeting, 1874, pp. 104-108.
3. Francis, Edward: Report of a Case of Filaria Medinensis, Guinea-Worm Disease, Am. Med. **2**: 651-652, 1901.
4. Barkan, Adolph: A Case of Filaria Medinensis in the Anterior Chamber, Arch. Ophth. & Otol. **5**: 151-152, 1876.
5. Jarvis, N. S.: Case of Filaria Medinensis, Dracunculus or Guinea-Worm, Virginia M. J. **8**: 399-401, 1857.
6. Walker, N. S.: Flesh Worm (Filaria Medinensis), South. M. & S. J. **13**: 462-463, 1857.

The anterior fragment of the worm progressed farther and was repeatedly cut. It remained four months and disappeared. The parents were of filthy habits. This appears to be a case of creeping eruption due to Ancylostoma braziliense, a condition known to occur in Georgia.

A similar case was reported by Van Harlingen [7] in which a man, aged 47, who had never lived outside of Philadelphia, was employed at the time in the custom house examining invoices from foreign countries; he was never in contact with goods imported. According to this report:

> Some time in September last (four months previously) the patient first noticed a small red papule under the skin of the back of the hand. The lesion gave rise to considerable pruritus but no pain. It soon assumed an elongate form and began to elongate at one end, taking on a serpentine form and pushing along under the skin throwing the epidermis up into a ridge, and showing beneath it like a sinuous red cord.
>
> The worm, for such it appeared to be, progressed slowly over the back of the hand between the index and middle finger and down across the palm . . . five to six inches in length and about an eighth of an inch in breadth. The head of the parasite appeared to be near the radial side and just turning from the palm to the back of the hand. . . . Concluding from the appearance that I had to deal with Filaria medinensis, I cut down upon the parasite, hoping to demonstrate its presence and perhaps to remove it . . . by traction. For some reason or other, probably awkwardness, I failed to find the parasite on two successive occasions.

The sinuous cord finally disappeared. This might have been a case of creeping eruption but it cannot be accepted as a case of D. medinensis. The cases reported by Walker and Van Harlingen showed lesions which correspond closely to the lesions reported by Kirby-Smith, Dove and White [8] and White and Dove [9] and others for creeping eruption caused by larvae of the hookworm Ancylostoma braziliense.

Leidy [10] described a nematode in the collection of the Philadelphia Academy of Sciences labeled "obtained from the mouth of a child." The specimen was $5\frac{7}{12}$ inches long by $\frac{1}{250}$ inch wide at the mouth and $\frac{1}{80}$ inch wide toward the posterior extremity. He named this worm Filaria hominis-oris and suggested at the time that it might be the male of D. medinensis, his opinion being based on the statement that this parasite was often introduced into this country by the importation of Negro slaves. Leidy [11] later confirmed his previous opinion that Filaria hominis-oris was D. medinensis, after examining a specimen of D. medinensis from Africa. In spite of Leidy's opinion, it appears possible that this worm was a specimen of Gongylonema, perhaps G. pulchrum, as Gongylonema is reported from the lips and inner surface of the cheek in man in the United States in several cases, and the brief description of the worm does not preclude this possibility.

Although there appear to be no valid records of D. medinensis in man in cases originating in the United States, there is, nevertheless, evidence that this worm is enzootic in the United States. The guinea-worm is known to occur in various wild and domesticated mammals of the Old World, including the wolf, hunting leopard, pole cat, dog and horse, and appears to be present in wild carnivores in the United States and Canada. Benbrook [12] has recently reported D. medinensis from the fox, and I have studied specimens of Dracunculus collected from the following hosts: the silver fox, Vulpes fulva, from Iowa (a part of the collection which formed the basis for Benbrook's report); the raccoon (Procyon lotor), from Ontario and New York, and the mink, Putorius vison, from Nebraska. These specimens appear to be morphologically identical with the guinea-worm of the Old World, D. medinensis. The specimens that I have studied vary in size from 16 to 36 cm. long by 1.4 to 1.8 mm. wide. Records of specimens from India and Africa vary from 16 cm. to 4 meters in length; from 45 to 70 cm. appears to be the usual length of specimens collected from man and large mammals, but there are numerous records of specimens from 25 to 30 cm. long, such specimens being more often found in the small mammals, in human infants or in abnormal locations such as the tongue, finger and penis. One case comparable to mine was reported by Cinotti [13] from a dog in Egypt, the worm being 36 cm. long.

Examination of the North American specimens shows that the head bears the cuticular "helmet" and the mediodorsal and medioventral cuticular projections which are characteristic of the guinea-worm. The tail is conical and curved ventrally, and the larvae agree in every respect with D. medinensis. Morphologically on comparison with material from India, the specimens collected from the fox, raccoon and mink appear to be Dracunculus medinensis. Moreover, the parasite does not appear to be a recent introduction, since Leidy [14] described a nematode, Filaria insignis, from the raccoon, Procyon lotor, which appears from his description to be D. medinensis, and since the wide distribution of the species, as indicated by the sources of my material, points to the likelihood that the parasite must have been here a long time in order to range from New York to Nebraska and from Iowa to Ontario.

It would appear that our native wild mammals harbor this highly important parasite, Dracunculus medinensis, which is most widely known from man in the Old World. It may be that this is a physiologic strain or variety which is not adapted to man or that living conditions here account for the fact that up to the present time it has not appeared in naturally acquired infestations as a parasite of man on this continent. In view of the fact that in the Old World the worm parasitizes both man and lower mammals, the presumption is that it is capable of parasitizing both man and animals in North America and that the freedom of man from infestation in North America is correlated with a difference in habits. In the Old World the prolific sources of infestation appear to be the shallow open wells and ponds in which persons wade and bathe and from which they drink. The worm is said to occur in the lower limbs of 85 per cent of the infested persons, and when such persons wade or bathe the worm discharges myriads of larvae into the water. These larvae develop in small crustaceans, species of Cyclops, and when water containing Cyclops with infective larvae is drunk by man or animals, the worms develop to maturity in the new host. In the United States and

7. Van Harlingen, Arthur: Notes of a Case of Filaria Medinensis, M. & S. Reporter (1649) **59:** 417-418, 1888.
8. Kirby-Smith, J. L.; Dove, W. E., and White, G. F.: Creeping Eruption, Arch. Dermat. & Syph. **13:** 137 (Feb.) 1926.
9. White, G. F., and Dove, W. E.: A Dermatitis Caused by Larvae of Ancylostoma Caninum, Arch. Dermat. & Syph. **20:** 191-200 (Aug.) 1929.
10. Leidy, Joseph: Description of Three Filariae, Proc. Acad. Nat. Sc. Philadelphia (1850-1851), vol. 5, pp. 117-118.
11. Leidy, Joseph: A Synopsis of Entozoa and Some of Their Ectocongeners Observed by the Author, Proc. Acad. Nat. Sc. Philadelphia (1850-1851) **8:** 55, 1856.
12. Benbrook, E. A.: Dracunculus Medinensis (Linnaeus, 1758) Appears in the United States as a Parasite of the Fox, J. Am. Vet. M. A. **34:** 821-824, 1932.
13. Cinotti, F.: Su di un caso di Filaria medinensis nel cane, Nuovo Ercolani **11:** 466-470 (Dec. 31) 1906.
14. Leidy, Joseph: Contributions to Helminthology, Proc. Acad. Nat. Sc. Philadelphia (1850-1851) **10:** 110-112, 1858.

Canada it is not customary for man to drink from the pools in which he bathes or to bathe in the pools from which he drinks. Our water supplies in general are of a sort which is free from contamination of the kind necessary for the propagation of this parasite in man, and it would be only under quite unusual conditions that human infestation with this worm would occur in the United States or Canada. Nevertheless, the presence in these countries of a worm morphologically identical with D. medinensis warrants the consideration of physicians in these countries.

SUMMARY

Of ten cases of Dracunculus medinensis reported from man in the United States, four are certainly or possibly of foreign origin and six are not cases of D. medinensis but apparently are cases of Loa loa of foreign origin, of spurious parasitism, and, in one case, possibly Gongylonema.

Dracunculus occurring in the fox, raccoon and mink, in Nebraska, Iowa, New York, Pennsylvania (?) and Ontario, is morphologically identical with D. medinensis, and probably is D. medinensis.

TOTAL GASTRECTOMY FOR CARCINOMA

PHYSIOLOGIC AND CHEMICAL STUDIES DURING A PERIOD OF TWO YEARS FOLLOWING THE OPERATION

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Before considering the case which is the main interest of this paper, I wish to review certain aspects of another case.

REVIEW OF PREVIOUS CASE

I first performed total gastrectomy for carcinoma of the stomach in August, 1929. The patient's return to the clinic four months following the total gastrectomy, that is, in January, 1930, gave me an opportunity to make physiologic and chemical studies, which were reported in detail in 1930.[1] A summary of, and comment based on, those studies is as follows:

"In view of the absence of secondary anemia in experimental animals after total gastrectomy, in which more than four years has elapsed since the operation, the question naturally arises whether the cause of secondary anemia in human beings in whom total gastrectomy has been done is the result of local recurrence of the malignant growth or of remote metastasis. The cases reported by Brigham, Moynihan and Mayo are exceedingly interesting in this respect. In Brigham's case, in which the anastomosis was between the esophagus and the duodenum, the patient was well for two years following total gastrectomy, and the normal formula of the blood was not affected. In Moynihan's patient, who lived three years and eight months following total gastrectomy, marked anemia occurred, but evidence of recurrence of carcinoma was not found at postmortem examination. In a case in which gastrectomy was performed successfully by W. J. Mayo, the patient lived for almost four years; but, before death, marked secondary anemia was found.

"In the case presented here, total gastrectomy was performed successfully for an extensive scirrhous carcinoma of the linitis plastica type. Studies made of the chemical changes in the blood and of the cell count over a period of four months do not reveal any appreciable change in the number of erythrocytes, in the content of the hemoglobin, in the carbon dioxide combining power, or in the concentration of blood chlorides or urea. Evidence of a definite alkaline tide has not been found. This observation is of interest, since it has been recognized that, with the secretion of gastric juice in a normal person, the urine tends to become more alkaline. The data so far, in this case, appear to indicate that the lack of a stomach and of its acid-secreting glands has a definite effect on the morning alkaline tide."

The patient was examined again, May 7, 1930, four months after these comments were made, or eight months after the total gastrectomy. Since the previous article [1] was in type at that time, results of these observations could not be included and are given here: The concentration of hemoglobin was 12 Gm. in each 100 cc. of blood, erythrocytes numbered 4,550,000 and leukocytes 10,100. The percentages of the various types of leukocytes were as follows: lymphocytes, 19.5; large monocytes, 0.5; neutrophils, 71.5; eosinophils, 3.0, and basophils, 0.5. Blood smears appeared normal except for slight deficiency of hemoglobin. Roentgen examination of the thorax and lungs gave negative results. A roentgenogram of the stomach revealed that the esophageal-jejunal anastomosis was free, without evidence of recurrence. No definite masses were felt on abdominal examination, although there were some shotty nodes in the inguinal region. On rectal examination three nodules, 1 by 1 cm. each, were felt on the rectal shelf. I was informed, June 28, 1930, that the patient had died and that the cause of death was uncertain.

Dr. Watkins and Dr. Heck, who have studied the blood of this patient, reported that prior to operation there was hypochromic secondary anemia of moderate degree. It is of interest that for a period of seven months after operation the values obtained in studies of the blood, including morphologic studies, remained practically constant. At the time of the patient's last visit the concentration of hemoglobin was relatively the same as at previous determinations, but there apparently was mild suppression of the bone marrow, as evidenced by reduced erythrocyte count, leukopenia, moderate granulopenia and moderate reduction in the number of reticulated erythrocytes. This picture might be mistaken for early pernicious anemia, but morphologic study of blood smears did not disclose the macrocytosis, poikilocytosis, and right shift of the neutrophils with the thinning and stranding of individual nuclear lobes, such as are seen in pernicious anemia. On the other hand, morphologic features of any primary blood dyscrasia were absent and the morphologic observations of the blood at this time were suggestive of a deficiency type of secondary anemia, which may be caused by inadequate diet, disturbances of metabolism which prohibit proper assimilation of essential food factors, or absence of the normal hormone and enzyme secretion, resulting in improper assimilation of active substances.

FURTHER REPORTS ON A SECOND CASE

About six months after publication of the report previously referred to,[1] I had the opportunity successfully to perform total gastrectomy in a second case.

From the Division of Surgery, the Mayo Clinic.

1. Walters, Waltman: Physiologic and Chemical Studies Following Total Gastrectomy for Carcinoma, J. A. M. A. **95**: 102-106 (July 12) 1930.

Some clinical and surgical aspects of this case have been published from time to time [2] and these aspects will be subordinated here.

A man, aged 69, who registered at the clinic, Dec. 26, 1930, had had good health until eighteen months previously, when two attacks of generalized abdominal distress had occurred. A considerable quantity of bloody vomitus had accompanied the second seizure. His condition then had improved, and he had resumed his work. Two weeks before he returned to the clinic the distress had recurred after a large meal. Rigid dietary restriction had followed. Mild gaseous dyspepsia had been associated with the distress. Since the onset he had lost 9 pounds (4 Kg.).

The patient was undernourished, had slight edema of the ankles and showed marked arteriosclerosis. Erythrocytes numbered 4,070,000 in each cubic millimeter of blood; the quantity of hemoglobin in each 100 cc. of blood was 8.6 Gm. Analysis of the gastric content revealed fresh blood clots and absence of free hydrochloric acid. Roentgenologic examination disclosed a large polypoid tumor on the posterior wall, in the upper half of the stomach, indistinguishable from a large malignant polyp. December 30, total gastrectomy was done with esophageal-jejunal anastomosis, posterior to the transverse colon, and a number 16 catheter was inserted temporarily in the distal part of the jejunum for the purpose of feeding. This jejunostomy tube was removed thirty-eight days following operation. The entire stomach (approximately 29 cm. in length) was removed. The growth proved to be an adenocarcinoma, graded 4, 15 by 10 by 3 cm. in various diameters. without lymphatic involvement. Convalescence was uneventful.

TABLE 1.—*Results of Examination of the Blood*

	12/26/30	3/16/31	3/18/31*	7/14/31	12/7/32†
Hemoglobin	8.65 Gm. in each 100 cc.	54%	.....	9.8 Gm. in each 100 cc.	9.6 (57%) Gm. in each 100 cc.
Erythrocytes per c.mm.	4,070,000	4,070,000	4,430,000	4,340,000	3,840,000
Leukocytes per c.mm.	9,400	3,700	4,200 or 4,900	5,100	3,900
Lymphocytes, per cent	.....	44.5	29.5	37.0	52.0
Monocytes, per cent	.....	6.5	7.5	7.5	10.0
Neutrophils, per cent	.....	47.5	60.0	55.0	36.0
Eosinophils, per cent	.....	1.5	2.5	0.5	1.0
Poikilocytosis	.....	Slight	Slight	Very slight	Slight
Anisocytosis	.....	Slight	Slight	Slight	Moderate
Reticulated erythrocytes	.....	.....	.....	.....	0.7%
Polychromatophilia	.....	.....	Slight	.....	Slight
Basophilic stippling	.....	.....	.....	.....	Positive
Basophils, per cent	.....	.....	0.5	.....	1.0

* Slight monocytosis; moderate deficiency of hemoglobin; good regeneration of erythrocytes.

† Bleeding time, one and a half minutes; good regeneration of erythrocytes; some mild hypochromasia.

I have had an opportunity to reexamine the patient four different times in the last two years: in December, 1930, in March and July, 1931, and, most recently, Dec. 7, 1932, at which time he returned for study at my request. He was found to be in excellent condition, with no evidence of recurrence of the carcinoma in any part of the body. Roentgenologic examinations were made of the esophageal-jejunal anastomosis, which was found to be normal and in roentgenologic appearance similar to what it had been on two other occasions subsequent to operation. The patient stated that he felt quite well and was definitely better than at any time since his operation two years previously, or even before that. He had gained 6 pounds (2.7 Kg.) in the last two months; his appetite was fairly good; he sometimes felt "full in the stomach" shortly after begining a meal, but this passed off and he was able to continue his meal; the bowels moved fairly regularly and there was no abdominal pain.

He was 71 at the time of this most recent examination. The blood pressure in millimeters of mercury was 132 systolic and 70 diastolic, with a pulse rate of 60 beats each minute. There were no masses to be felt in the abdomen, and on rectal examination the rectal shelf was found to be free from nodules.

Throughout this period of observation of two years, certain special studies have been carried out and a few complications have arisen. These will now be considered.

Studies of the Blood.—Results of these investigations are recorded for the most part in table 1.

In July, 1931, chemical studies of the blood disclosed a concentration of urea of 40 mg. in each 100 cc. The carbon dioxide combining power varied from 43 to 52 volumes per cent and the blood chlorides were 611 mg. in each 100 cc.

Acidity of the Urine and the Alkaline Tide.—In commenting on the physiologic effect of loss of the entire stomach in my earlier paper,[1] the study of the acid-base equilibrium in such a case, as evidenced by the presence or absence of an alkaline tide, seemed worthy of consideration. This was due to the fact that with the absence of the stomach and the loss of the acid and chloride secreting properties of gastric glands the question arose as to whether this might not produce a disturbance of the acid-base equilibrium. A study of that case by Dr. Keith failed to show definite evidence of alkaline tide. In commenting on this, he stated that this observation was of interest, since it has been recognized that with the secretion of gastric juices in a normal person the urine tends to become more alkaline. The data up to that time (four months after operation) in that case appeared to indicate that the lack of a stomach and its acid secreting glands has a definite effect on the morning alkaline tide.

In the case reported in detail in this paper, Dr. Keith has made similar studies, the results of which are presented in table 2. In commenting on the determinations made respectively on March 20, 1931, and Dec. 8, 1932, he noted that there was more marked diuresis on the latter date and that the urine was definitely diluted. There was a suggestion of an alkaline tide in the specimen passed from 8 to 9 a. m., but none in the subsequent three specimens. There was no significant change in the excretion of chloride. The only definite change from the examinations on March 20 was a marked output of water,

TABLE 2.—*Morning Determination of Alkaline Tide*

	Volume, Cc.		Specific Gravity		p_H		Chlorides		
	March 20,	Dec. 8,	March 20,	Dec. 8,	March 20,	Dec. 8,	March 20,	Dec. 8, 1932	
Time	1931	1932	1931	1932	1931	1932	1931, Gm.	Gm. per 100 Cc.	Gm.
9 p.m. to 7 a.m.	950	...	1.010	.....	6.0	...	5.70	....	....
11 p.m. to 7 a.m.	...	61	.....	1.018	...	6.4	....	0.69	0.42
7 a.m. to 8 a.m.	40	88	1.012	1.018	6.4	6.3	0.46	0.83	0.73
8 a.m.* to 9 a.m.	..	15	.....	1.021	...	7.0	....	0.63	0.09
9 a.m. to 10 a.m.	55	93	1.013	1.011	6.6	6.3	0.38	0.59	0.55
10 a.m. to 11 a.m.	70	105	1.013	1.011	6.6	6.4	0.53	0.59	0.62
11 a.m. to 12 m.	75	155	1.015	0.010	6.8	6.2	0.67	0.61	0.95

* 500 cc. of water by mouth at 8 a. m. Drank water in five minutes.

2. Bannick, E. G.: Total Gastrectomy: Observations of Two Years on a Case Previously Reported, Proc. Staff Meet. Mayo Clin. **8**: 3-5 (Jan. 4) 1933. Walters, Waltman: Follow-Up Examination of Two Patients: (1) Two and a Half Months Following Total Gastrectomy: (2) Following Removal of a Papillary Carcinoma of the Bladder That Was Associated with an Unusual Renal Lesion, Proc. Staff Meet. Mayo Clin. **6**: 157-158 (March 18) 1931. Walters, Waltman, and Priestley, J. B.: Total Gastrectomy and Other Extensive Gastric Resections in Elderly Patients, Proc. Staff Meet. Mayo Clin. **6**: 49-53 (Jan. 28) 1931. Walters, Waltman; Priestley, J. B., and Gray, H. K.: Total Gastrectomy: Billroth I Procedures for Extensive Malignant Growths (Lymphosarcoma in One Case) Including Its Application to Elderly Patients; Pylorectomy for Hemorrhagic Ulcers; Hepaticoduodenostomy for Strictures of the Common Bile Duct; Resection of the Common Bile Duct for Neurofibroma; Ureterosigmoidal Transplantation and Plastic Operations on the Penis in Cases of Exstrophy of the Bladder: Reports of Thirteen Cases, S. Clin. North America **11**: 809-828 (Aug.) 1931. Walters, Waltman; Priestley, J. B., and Johnson, H. W. E.: Gunshot Wounds of the Abdomen; Cystic Colloid Adenocarcinoma of the Urachus; Tuberculosis of the Upper Segment of a Duplicated Kidney; Total Gastrectomy: Report of Cases, Proc. Staff Meet. Mayo Clin. **6**: 429-433 (July 22) 1931.

with dilution. In commenting further, Dr. Keith stated that the patient is getting along very well without a morning alkaline tide.

Roentgenologic Studies.—March 16 and July 14, 1931, roentgen examinations of the thorax gave negative results. March 16, 1931 and Dec. 7, 1932, roentgenograms of the stomach gave evidence that the esophageal-jejunal anastomosis was free and without deformity. The preoperative roentgenograms as well as the roentgenogram of the anastomosis made Feb. 7, 1931, have been published previously;[3] the present roentgenogram of the anastomosis is similar to the one published.

Complications.—March 16, 1931, three months subsequent to operation, the patient returned for reexamination because of a soft mass measuring 6 by 4 cm., above the inguinal ligament on the right side. This mass had been noticed at the patient's dismissal immediately following operation, but the mass apparently had not changed in size. In March, what seemed to be enlarged inguinal nodes were noticed; several of them were removed for microscopic examination, but the changes in them were reported to be inflammatory only. The patient returned, July 14, 1931, and stated that the mass in the right lower quadrant had increased in size and that there was soreness in it at times. He stated that he had not been feeling as well as he formerly had. It was thought advisable to explore the fluctuating mass, which I did, July 16, 1931, through a right McBurney incision. Extraperitoneal drainage was instituted, opening into a cystic mass which contained about 700 to 800 cc. of yellowish, milky fluid, without odor. Further exploration was not made, and there appeared to be no gross characteristics of a malignant lesion. A slight amount of similar material continued to drain from this region until October 8, when the patient returned for reexamination. At that time the abdominal sinus was opened and its interior explored with the finger. Nothing abnormal was found. The cavity was curetted, and a strip of iodoform gauze was placed within it. This gauze was removed a few days later and subsequently the sinus healed completely. There has been no further evidence of disturbance in this region. The etiologic factor concerned in the formation of this cystic mass is unknown. Whether it might have been leakage of the milk introduced through the jejunostomy tube during the thirty-eight days subsequent to operation is a matter of speculation. Against such an opinion is the fact that in the three months subsequent to operation the mass had not appreciably increased in size, but in the succeeding four months noticable enlargement had occurred. The material, however, had the exact appearance of milky fluid.

SUMMARY AND CONCLUSIONS

Physiologic and chemical studies have been made on repeated occasions over a period of two years on the patient whose case is here reported in detail and on whom successful total gastrectomy was performed for an extensive, highly malignant carcinoma. This patient was living and well at the time this paper was written, with no evidences of recurrence or metastasis of the malignant lesion. Physiologic and chemical studies in this case, as well as in another case in which operation was successfully performed, and the patient studied over a period of eight months subsequent to operation, would indicate that in both cases but little change took place in the blood picture from that prior to operation. This applies to the percentage of hemoglobin as well as to the number and morphologic characteristics of the erythrocytes and leukocytes.

As one of the means of determining the effect of the loss of the acid and chloride normally secreted by the stomach, and absent as the result of the total gastrectomy, a study of alkaline tide would seem to indicate that such an alkaline tide was lacking in both cases. There was no change, however, in the excretion of chloride in the urine.

3. Walters, Priestley and Gray.[2]

Roentgen studies of the esophageal-jejunal anastomosis revealed no evidence of recurrence over a period of two years in the case reported in detail in this paper and attention is called to an unusual and inexplicable complication, namely, the accumulation of milky fluid in the lower part of the abdomen just above the inguinal ligament, which necessitated incision and drainage seven months subsequent to operation. During the seventeen months subsequent to that time, there was no further evidence of complications.

HEREDITARY DIABETES INSIPIDUS

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Diabetes insipidus, which was differentiated from diabetes mellitus in 1674 by Thomas Willis, may be defined as a chronic disease characterized by marked thirst and the excretion of large quantities of a pale urine of low specific gravity.

Diabetes insipidus is classified into two types: (1) secondary or symptomatic and (2) primary or idiopathic, including the hereditary instances.

Hereditary Diabetes Insipidus

Author	Year	No. of Patients	Male	Female	Generations	Consanguinity
Lacombe	1841	8	5	3	2	Absent
Deebrey	1859	5	2	3	2	Absent
Wachsmuth	1863	2	2	0	1	Absent
Reith	1866	2	1	1	1	Absent
Lanceraux *	1869					
Gee	1877	12	9	3	4	Absent
Pain	1879	7	5	2	3	Absent
Orsi	1881	6	5	1	2	Absent
A. Weil, Sr.	1884	35	19	14 (2?)	6	Present
Clay	1889	3	2	1	1	Absent
McIlraith	1892	9	6	3	3	Absent
Lawritzen	1893	8	5	3	4	Absent
Sasse	1893	8	4	1 (3?)	3	Absent
Marinesco	1895	2	2	0	1	Absent
Knöpfelmacher	1905	5	3	2	4	Absent
A. Weil, Jr.	1908	(See A. Weil, Sr.)				Present
Ehrmann	1911	3	3	0	4	Absent
Janzen and Brockman *	1921					
Martinez and Navarron	1922	2	?	?	?	Absent
Chase	1927	22	?	?	5	Absent

* Complete reference unavailable.

Since the first description of hereditary diabetes by Lacombe,[1] in 1841, numerous authors [2] have interested themselves in this peculiar ailment, as indicated in the accompanying table. The classic publications by the

From the Medical Service of Dr. B. S. Oppenheimer, Montefiore Hospital.

This work was done with the aid of a special grant from the Montefiore Hospital.

1. Lacombe: De la polyurie, Paris thesis, 1841.

2. Bauer, J.: Konstitutionelle Disposition zu inneren Krankheiten, Berlin, Julius Springer, 1924. Chase, L. A.: Hereditary Diabetes Insipidus, Canad. M. A. J. **17**: 212 (Feb.) 1927. Clay: Three Cases of Diabetes Insipidus in One Family, Lancet **1**: 1188, 1889. Deebrey: Observation de polyurie, Gaz. d. hôp., 1859, p. 46. Ehrmann, R.: Berliner klin. Wchnschr. **48**: 496, 1911. Gee: A Contribution to the History of Polydypsia, St. Bartholomew's Hospital Reports **8**: 79, 1877. Janzen and Brockman: Hereditärer Diabetes Insipidus, Nederl. tijdschr. v. geneesk., 1921 (ref. Deutsche med. Wchnschr., 1921, p. 760). Knöpfelmacher: Diabetes Insipidus bei Kindern, München. med. Wchnschr., 1905, p. 829. Lanceraux: De la polyurie (diabete insipide), Paris, A. Delahaye, 1869. Lawritzen: Hospitalstid., ref. **1**, 1893. Marinesco: Two Cases of Essential Familial Polyuria, Compt. rend. Soc. de biol., 1895, p. 41. Martinez and Navarron: Zwei Fälle der familiaren Form des idiopatischen Diabetes Insipidus mit hypophysenbehandlung, Rev. d. circ. Med. de Cordoba **10**: 78, 1922 (Kongresszentralblatt 27, p. 363). McIlraith: Notes on Some Cases of Diabetes Insipidus with Marked Family and Hereditary Tendencies, Lancet **2**: 767, 1892. Orsi, F.: Coriosita cliniche VI Sei individin d'una stessa famiglia calpiti da Idruria, Gazz. med. Ital. lomb. **3**: 91, 1881. Pain: Notes à propos de quelques observations de polyuria chronique, Paris thesis, 1881. Reith: Polydypsia: Treatment by Large Doses of Valerian; Improvement, M. Times & Gaz., London, 1866, p. 309. Sasse: Ein neuer Fall von hereditären Diabetes Insipidus, Inaug. Diss., Bonn, 1893. Wachsmuth: Ein Fall von Diabetes Insipidus, Virchows Arch. f. path. Anat. **26**: 318, 1863.

Weils[3] concerning 119 members of a family, 35 of which had diabetes insipidus, are noteworthy.

In several instances of diabetes insipidus in a family under our observation, therapy yielded very gratifying results:

REPORT OF CASES

CASE 1.—*History.*—A. M., a married woman, aged 33, was born in Vermont and has lived in New York City since 1924.

Her father was known to have had diabetes insipidus; he died of pneumonia at the age of 41. Her mother is 55 years of age, living and well. The patient's paternal grandmother, maternal grandmother and a maternal aunt had diabetes insipidus.

The patient had minor childhood illnesses and has had frequent infections of the upper respiratory tract as an adult. There is a tendency to constipation and temperamental lability. She was operated on for appendicitis in May, 1931. Her menstruation is uneventful.

One child of the patient's first marriage and one of the second have diabetes insipidus. Her fluid intake and output increased approximately twofold during her three pregnancies and reverted to the previous level after parturition. The patient has never had sexual intercourse more frequently than two or three times a month.

Nocturnal and diurnal polyuria, polydipsia and pollakiuria have been present ever since the patient can remember, the fluid intake and output ranging from 8 to 16 liters in twenty-four hours. She feels more comfortable in the winter than in the summer months and has observed that her symptoms were not as marked when she lived in Vermont. She perspires little, even after exertion.

Examination.—Save for the presence of small, well circumscribed lipoid infiltrations (xanthelasma) at the inner canthi of both lower lids, the physical examination is negative.

The Wassermann reaction of the blood, Jan. 27, 1932, was negative. Chemical analysis of the blood showed sugar, urea nitrogen, uric acid, cholesterol, total fats, calcium, phosphorus, chlorides, and total proteins all normal. The sugar tolerance test, January 29, after 50 Gm. of dextrose in 250 cc. of black coffee was normal. A blood count revealed no abnormalities. Basal metabolism was normal.

Repeated urine examinations showed a low specific gravity, ranging from 1.003 to 1.006, neutral reaction, and numerous epithelial cells. Albumin and dextrose were absent.

A roentgenogram of the skull was negative. Because hospitalization was impossible, the patient was taught to measure her total fluid intake and output. After a satisfactory control period, trial doses of solution of pituitary were administered. It was found that from 1.5 to 2 cc. of solution of pituitary divided into two doses, administered in the morning and before retiring, diminished the fluid intake and output from 12 to 3 or 4 liters and enabled the patient to go through the night without drinking of voiding. Solution of pituitary by nasal spray (0.5 cc. three times a day, the last dose shortly before retiring) was then substituted for the hypodermic injections. The results were equally gratifying. On several occasions, when the supply of the drug was exhausted, the excessive thirst and polyuria returned, the total fluid intake and output being approximately that prior to the institution of the treatment with solution of pituitary. The patient was advised to increase the evening dose, if she had indulged in a very heavy supper, to avoid nocturia. In addition, there was a marked decrease in irritability. The patient was under our observation from January to June, 1932, the diabetes insipidus syndrome being controlled with nasal sprays of solution of pituitary.

CASE 2.—Alfred M., the oldest child, aged 14, weighed 11 pounds (5 Kg.) at birth and was delivered instrumentally. He was breast fed for eight months, and he talked and walked between 1 and 2 years of age. In early childhood he had uncomplicated measles and whooping cough. Polyuria, polydipsia, pollakiuria, and nocturnal enuresis were first noted at the age of 5 years. His fluid intake and output averages from 12 to 15 liters in twenty-four hours, the nocturnal polyuria and polydipsia ranging from 3 to 5 liters. The child lives in Vermont with his grandparents, and we have not, as yet, been able to examine him.

CASE 3.—*History.*—Fredrick M., aged 7 years, weighed 7 pounds (3.2 Kg.) at birth and was delivered instrumentally. He was breast fed for two months and then weaned because of unaccountable irritability and apparent dissatisfaction with the mother's milk. For the past two years the child has had nocturnal and diurnal polydipsia, and enuresis, the latter of late being nocturnal only.

Examination.—Physical examination was negative.

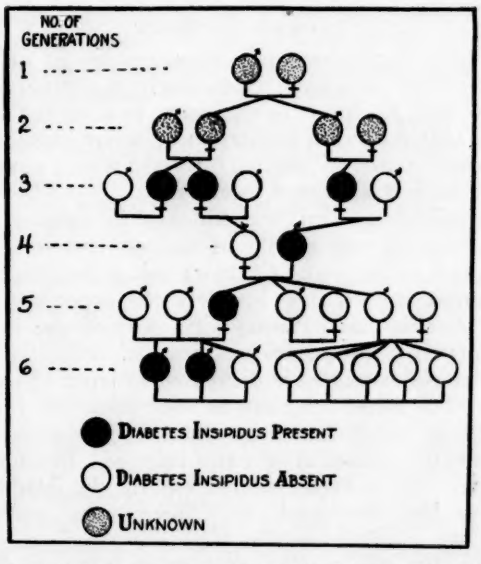
Laboratory Data.—Chemical analysis of the blood, Feb. 17, 1932, showed the sugar, urea nitrogen, cholesterol, chloride and calcium all normal. The urine was normal save for low specific gravity, 1.002 to 1.006.

A roentgenogram of the skull showed slight exaggeration of the normal digital markings. The sella turcica was normal. There was cloudiness of both antrums.

Pituitary therapy (0.5 cc. of solution of pituitary) administered by nasal spray before retiring diminished the threshold of water exchange and eliminated enuresis.

COMMENT

Secondary or symptomatic diabetes insipidus may be associated with pathologic anatomic lesions at the base of the brain involving the pituitary gland, the structures of the midbrain or, more rarely, both. Hypophyseal lesions are most frequent, the processes occasionally extending beyond the confines of the posterior lobe to the so-called pars intermedia and even to the anterior lobe.[4] The exact location of the lesion in experimentally produced diabetes insipidus is still a question. However, it is generally believed that the causative factor of diabetes insipidus is a disturbance in the pituitary-midbrain system (neurohypophysis, infundibulum, tuber cinereum and mamillary bodies).



Geneological table of our patients with hereditary diabetes insipidus. The cases described in the text are of the fifth and sixth generations.

The etiology of primary or idiopathic diabetes insipidus is unknown. Necropsy reports in the hereditary type are unusually rare. Marinesco[2] mentions proliferation of the lining epithelium of the fourth ventricle with the formation of cellular excrescences. His patient, however, died of tuberculous meningitis, which may well account for the pathologic manifestations

3. Weil, A.: Ueber die hereditäre Form des Diabetes Insipidus, Virchows Arch. f. path. Anat. **45**: 70, 1884. Weil, A., Jr.: Ueber der hereditaren Form des Diabetes Insipidus, Deutsches Arch. f. klin. Med. **93**: 180, 1908.

4. Kraus, E. J., in Henke-Lubarsch-Handbuch Der Speziellen Pathologischen Anatomie und Histologie Drusen mit Innerer Sekretion, vol. 8.

present. One of our cases, as well as an instance described by Futcher,[5] presented lipoid infiltrations of the eyelids (xanthelasma). One of us,[6] in a previous communication, pointed out that these deposits may simply be a beauty defect, but at times they are objective signs of a severe disturbance in lipoid metabolism (lipoidgranulomatosis) in which one of the clinical pictures (type Hand-Schüller-Christian) has as one of its cardinal symptoms the diabetes insipidus syndrome.

Hereditary diabetes insipidus is most frequently detected in infancy or early childhood. Longevity is common in those surviving infancy, three of Weil's patients living to the age of 83, 87 and 92 years.

Hereditary diabetes insipidus is somewhat more common in males than in females.

Race and climate have no effect on its occurrence.

Consanguinity (intermarriage of cousins) was present in Weil's cases and in our own.

Hereditary diabetes insipidus may be transmitted through the maternal or paternal side to either male or female children. Sometimes one generation may be skipped (Wachsmuth, Reith, Clay, McIlraith). We are unable to agree with Liebmann,[7] who believes that the transmission is similar to that of hemophilia. Analysis of the instances of hereditary diabetes insipidus (Pain, Weil and Knöpfelmacher) supports our contention.

SYMPTOMATOLOGY

In order to appreciate the symptomatology of hereditary diabetes insipidus, particularly the differences in infants and adults, it is necessary to consider the rôle of the kidneys in the regulation of water balance. This has been extensively studied by Veil [8] whose monograph on the subject appeared recently.

According to Veil, the kidneys in infants play a comparatively minor rôle in the regulation of water exchange, the important factors being the skin and the gastro-intestinal tract. From 17 to 56 per cent of the water is eliminated through the skin of the infant in the form of insensible perspiration, including sweat. In older children, this is decreased to from 15 to 32 per cent. To their function of excretion of metabolic wastes, at about 2 years of age the kidneys add the function of regulation of water balance. In addition, at this age, the nervous enervation of the bladder and kidneys has developed, as evidenced by attempts at voluntary control of the bladder. It is thus quite evident that the symptomatology in infancy and adult life varies considerably.

Symptoms in Infancy.—Polyuria is never present at birth. Its subsequent occurrence, however, can be readily predicted by parents acquainted with the disease, as in the instances described by Weil in which the parents were able to tell by the sixth month whether or not the infant would be a "drinker." The important signs are: 1. Dissatisfaction with breast milk. 2. Marked restlessness. McIlraith records two instances of peculiar "infantile fits." 3. Nocturnal wakefulness relieved only after drinking water (Gee, Pain, McIlraith). Liebmann emphasizes the frequency of diarrhea.

Symptoms in Childhood and Adult Life.—At about 2 years of age, paralleling the transference of the function of regulation of water exchange from the skin and gastro-intestinal tract to the kidneys, the symptoms associated with the syndrome of diabetes insipidus appear. Thus there are nocturnal and diurnal polyuria, polydipsia, often pollakiuria, and enuresis, the latter at first diurnal and nocturnal, and subsequently nocturnal only. Enuresis may persist even to adult life. According to Weil, the symptoms of hereditary diabetes insipidus are maximum in extent between the ages of 20 and 30, diminishing after 50. The thirst is sometimes unusually marked, the patient drinking as much as a liter of water an hour. Pain [2] noted the occurrence of death after an excessive drinking bout. Adolescence and commencement of sexual relationships often advantageously affect the symptoms.

It is of interest to note that Futcher observed a diminution of libido in patients with diabetes insipidus. Although excessive thirst and polyuria may be the sole symptoms, the patients frequently complain of dryness of the mouth, a thick tenacious sputum which is difficult to bring up, coldness of the hands and feet, pains in the joints, a sense of pressure in the head, hot flushes, a prickly sensation of the skin, and constipation. The appetite is fairly good as a rule, large quantities of fluid being taken with the meals to moisten the food. Objectively, the patients sometimes have a high forehead, a marked temperature lability, and a tendency to bradycardia. The skin is dry and coarse, and there is very little perspiration even after vigorous exercise. One of Knöpfelmacher's patients had congenital ichthyosis. In addition, there may be a marked distention of the bladder. Ehrmann [2] and McIlraith [2] note that the children are occasionally backward. Imbeciles are also described. Roentgenograms of the skull and the region of the sella turcica show no abnormalities (Chase [2]). In one of our cases (case 3), exaggeration of the digital markings of the skull was present.

During febrile bouts the polyuria and polydipsia may completely disappear, only to return after convalescence. During the course of pregnancy there is an aggravation of the symptoms, with a reversion to the former level after parturition. Patients with hereditary diabetes insipidus are not more than usually prone to intercurrent illnesses.[3]

Chemical studies are reported in a few instances of hereditary diabetes insipidus. In our cases the observations are in general within normal limits. Gibson, Magers and Dulaney,[9] using the same technic, secured sugar tolerance curves resembling those of diabetes mellitus in six patients with diabetes insipidus.

Under normal circumstances the urinary output varies with the sodium chloride output. In diabetes insipidus, according to Lichtwitz,[10] there is a complete dissociation of sodium chloride and water output.

THERAPY

Because of the occurrence of symptoms in early childhood and their persistence throughout adult life, patients with diabetes insipidus become so accustomed to the associated discomforts and inconveniences, which they have accepted as their lot, that they often do not seek relief. Patient 1 insisted that quenching her thirst was her greatest delight in life and only agreed to submit to our investigation provided we did not limit her water intake. As emphasized by Snell and Rowntree [11] and

5. Futcher, T. B.: Diabetes Insipidus: With a Report of Five Cases, Johns Hopkins Hosp. Report 10, 1901-1902.
6. Chester, William: Ueber Lipoidgranulomatose, Virchows Arch. f. path. Anat. **279:** 561, 1930.
7. Liebmann: Ueber Diabetes Insipidus bei Kindern, Inaug. Diss., Berlin, Gustav Schade, 1888.
8. Veil: Die physiologie und pathologie des Wasserhanshaltes, Ergebn. d. inn. Med. u. Kinderh. **23:** 648, 1923.
9. Gibson, R. B.; Magers, E. J., and Dulaney, Herman: Sugar Curves in Diabetes Insipidus, Endocrinology **11:** 341 (July-Aug.) 1927.
10. Lichtwitz, L.: Klinische Chemmie, ed. 2, Berlin, Julius Springer, 1930.
11. Snell, A. M., and Rowntree, L. G.: Clinical Manifestations of Water Intoxication in a Case of Diabetes Insipidus with Some Notes on the Disturbances of Blood Composition and Vasomotor Mechanism, Endocrinology **11:** 209 (May-June) 1927.

by Weir, Larson and Rowntree,[12] water intoxication may occur, subsequent to restriction of the fluid intake. It is interesting to note that when fluids were withheld for a period of three hours in conjunction with laboratory studies in our patient, restlessness, irritability, hot flushes and headache appeared. After one such "water fast" of three hours, A. M. drank 2 liters of water within a period of half an hour.

According to Veil, a restriction of protein and salt in the diet diminishes the thirst and polyuria. Reith [2] reported improvement in the clinical picture with large doses of valerian. Improvement followed lumbar puncture in one instance.[13] Cold baths sometimes relieve the thirst.

Since von den Velden [14] used an extract of the pituitary gland in the treatment of diabetes insipidus in 1913, various posterior lobe derivatives have proved effective in this condition. An exception is the frequent failure of treatment with solution of pituitary in postencephalitic diabetes insipidus (Snell and Rowntree). In Turner's [15] case, a child, aged 6, treatment with solution of pituitary was effective only after the fluid intake was diminished. Weir, Larson and Rowntree [12] emphasize the possibility of water retention subsequent to pituitary therapy with symptoms of water intoxication. Chase and Mettel [16] report a gain in weight following treatment with solution of pituitary. This was not present in our cases.

Solution of pituitary by intranasal spray, once the difficulties in technic have been overcome, yields excellent results and avoids the discomfort of repeated hypodermic injections. This method was first used by Blumgart [17] in 1922. The results are sometimes better than with the subcutaneous method of administration. This, as Blumgart mentions, is probably due to the rapid absorption of the solution of pituitary in virtue of the direct communication of the lymphatics of the nasal mucosa with the subarachnoid space. At no time has there been any irritation of the nasal mucosa or any other untoward symptom resulting from the treatment with solution of pituitary. The doses of solution of pituitary, effective at the time the therapy was instituted, are just as effective after a period of five months.

PROGNOSIS

The prognosis in hereditary diabetes insipidus after infancy, as evidenced by the reports of Weil, is excellent. It is not uncommon for these patients to live to the seventh, eighth and ninth decades.

CONCLUSIONS

1. Several members of a family with hereditary diabetes insipidus were studied.

2. In the two available members, solution of pituitary, administered by hypodermic injection and nasal spray, greatly lowered the level of water exchange and completely controlled the diabetes insipidus syndrome.

12. Weir, J. F.; Larson, E. E., and Rowntree, L. G.: Studies in Diabetes Insipidus, Water Balance and Intoxication, Arch. Int. Med. **29:** 306 (March) 1922.

13. Herrick, J. B.: Report of a Case of Diabetes Insipidus with Marked Reduction in the Amount of Urine Following Lumbar Puncture, Arch. Int. Med. **10:** 1 (July) 1912.

14. von den Velden, R.: Die Nierenwerkung von Hypophysenextrakten beim Menschen, Berlin. klin. Wchnschr. **50:** 2083, 1913.

15. Turner, J. H.: A Case of Diabetes Insipidus in a Child, Arch. Pediat. **45:** 433 (July) 1928.

16. Mettel, Howard: Antidiuretic Effect of Solution of Pituitary Dropped Intranasally in a Case of Diabetes Insipidus, Am. J. Dis. Child. **38:** 342 (Aug.) 1929.

17. Blumgart, H. L.: Antidiuretic Effect of Pituitary Extract Applied Intranasally in a Case of Diabetes Insipidus, Arch. Int. Med. **29:** 508 (April) 1922.

CHOLECYSTOGRAPHY: ITS CLINICAL EVALUATION

A STUDY OF 2,070 CASES

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The present article is a review of our experience with intravenous cholecystography in the diagnosis of gallbladder disease in 2,070 patients over a period of five years. In the numerous articles on cholecystography which have appeared, the test seems to have been carried out chiefly on patients with symptoms of gallbladder disease. Consequently, the statistics given do not indicate the reliability of the method per se but rather the reliability of the method when used in conjunction with a clinical diagnosis of gallbladder disease. In our clinic, the dye has been given in a somewhat routine fashion to a wide variety of patients, although the majority of them have been referred to the gastrointestinal service because of some type of abdominal distress. Tetiothalein sodium-N. N. R. or, in a small group, phentetiothalein sodium-N. N. R., has been used, the technic being that first suggested by Case,[1] in which the dye is given late in the afternoon, followed by a small fat-free meal. No more food or liquid is then taken into the stomach until after films have been made the following morning. Two exposures are taken at about a thirty minute interval; a fatty meal is then given and a third film made thirty minutes later.

TABLE 1.—*Three Groups of Visualization*

Group		Number	Per Cent
1	Good visualization with no evidence of stone..	1,398	67.6
2	Stones demonstrated regardless of the type of visualization	192	9.2
3	Faint visualization and nonvisualization with no evidence of stone.....	480	23.2
	Total.....	2,070	100

For the purpose of analysis, the cholecystographic diagnoses have been arbitrarily divided into three groups, as shown in table 1.

Approximately two thirds (1,398) of the cases fall into the first group, that of good visualization of the gallbladder without stone. The corresponding clinical diagnoses are given in table 2.

In only thirty-five of these is there a history suggestive of biliary disease. This small group deserves especial consideration. The symptoms are very suggestive of gallbladder disease but the gallbladder visualization is normal. In seven of these, cholecystectomy has been performed. A careful pathologic and clinical analysis of these seven cases has revealed that fairly definite pathologic evidence of cholecystitis is present in only one, whereas in six the gallbladder seems normal both grossly and microscopically. It must be admitted that considerable difference of opinion exists as to what constitutes an anatomically normal gallbladder. We have taken the view that the presence of occasional collections of round cells in the wall are not abnormal, since they are found in prac-

From the Department of Medicine, University of Chicago.
Read before the Central Society for Clinical Research, Chicago, Nov. 4, 1932.

1. Case, J. T.: Evaluation of Cholecystography, J. A. M. A. **92:** 291 (Jan. 26) 1929.

tically all gallbladders. On the other hand, marked leukocytic infiltration with or without an increase in connective tissue in the wall has been considered as definite evidence of cholecystitis. When judged in this manner, only one of the seven can be considered as

TABLE 2.—*Clinical Diagnoses in 1,398 Cases of Good Visualization of the Gallbladder with No Evidence of Stone*

Disease	No. of Cases	Disease	No. of Cases
Achylia gastrica	3	Hyperthyroidism	2
Aerophagy	7	Hysteria	1
Angina pectoris	5	Intercostal neuritis	3
Angioneurotic edema	1	Jejunal ulcer	1
Anxiety neurosis	1	Latent syphilis	5
Arteriosclerosis, generalized	3	Malnutrition	6
Bowel distress (colitis)	588	Menopause	2
Brain tumor	2	Migraine	21
Carcinoma of colon	2	Miscellaneous	145
Carcinoma of pancreas	1	Neoplasm of liver	3
Carcinoma of stomach	6	Nervous vomiting	5
Catarrhal jaundice	8	Neurasthenia	2
Cervical polyp	1	No diagnosis	82
Cholecystitis	28	No organic disease	81
Cholelithiasis	7	Obesity	8
Chronic appendicitis	4	Ovarian cyst	3
Chronic arthritis	12	Paroxysmal tachycardia	2
Cirrhosis of liver, atrophic	1	Pernicious anemia	8
Colloid goiter	1	Pregnancy	2
Constipation	11	Psychoneurosis	25
Cystocele and rectocele	2	Pulmonary tuberculosis	11
Diabetes mellitus	5	Rectal prolapse	1
Diverticulosis of colon	5	Renal colic	1
Duodenal ulcer	209	Rheumatic heart disease	6
Dysmenorrhea	2	Rumination	1
Emphysema	1	Sacro-iliac strain	3
Endocervicitis	5	Salpingitis	5
Essential hypertension	6	Tabes dorsalis	2
Gastric neurosis	3	Tuberculous peritonitis	1
Gastric ulcer	14	Ulcerative proctitis	1
Gastro-enteritis	1	Upper respiratory infection	1
Herpes zoster	3	Uterine fibroids	3
Hydronephrosis	2	Ventral hernia	4

definite cholecystitis. Clinically, it is noteworthy that only partial relief has been obtained in four cases and no relief whatever in two. One patient has not been traced. It seems probable, therefore, that the clinical diagnosis of cholecystic disease is in error in the great majority of the cases in this group and that the cholecystographic observations are correct.

It is, of course, entirely possible that asymptomatic cholelithiasis may have been present in a portion of these 1,398 cases, even though a good visualization of the gallbladder without evidence of stone was obtained. Shay [2] has reported such observations. At the present time, two mistakes of this type are known to have been made in our series. In one of these the report was that of good visualization, but the patient had breathed in all of the films so that the shadow was not clear. Later, she had an attack of acute gallbladder colic;

TABLE 3.—*Diagnosis at Operation in Cases in Which Stones Were Demonstrated by Cholecystography*

Cholecystographic Diagnosis	Stones Found at Operation or Autopsy	No Stones at Operation	Accuracy, per Cent
Calcified stones (positive shadows)	30	0	100
Nonopaque stones (negative shadows)	27	1	96.4
Total	57	1	98.3

operation was done as an emergency measure, and a gangrenous gallbladder containing one large stone was found. In the second case, the report was that of good visualization with a questionable nonopaque stone. The patient presented no evident gallbladder symptoms at the time of examination but was later subjected to operation. The gallbladder was found to contain one cholesterol stone. Reexamination would probably have demonstrated the stones in both instances.

The second group consists of 192 cases in which stones have been demonstrated cholecystographically. Of these, 83 (43.2 per cent) are positive shadows indicating calcium containing stones, and 109 (56.8 per cent) are negative shadows of nonopaque stones in gallbladders with faint or good visualization. Fifty-seven of these cases have come to operation or autopsy, as shown in table 3. The diagnosis of stone on the basis of positive shadows has been correct in all of the thirty cases, an accuracy of 100 per cent. In all the twenty-eight instances of negative shadows interpreted as nonopaque stones, cholelithiasis has been found in twenty-seven, an accuracy of 96.4 per cent. In the one normal case, the x-ray report had been good visualization with doubtful nonopaque stone. This illustrates the difficulty encountered occasionally even by the experienced observer in differentiating between gas bubbles in the intestine and the negative shadows of nonopaque stones.

The chief difficulties encountered by us have been in the third group of 480 cases (23.2 per cent of the total), comprising 310 instances of nonvisualization and 170 of faint visualization without evidence of stone. The diagnosis has been checked anatomically in 102 of

TABLE 4.—*Diagnosis at Operation in Cases Giving Clinical Evidence of Biliary Disease and Faint or No Visualization of the Gallbladder by Cholecystography*

Diagnosis at Operation	Faint Visualization		Nonvisualization		Total	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Cholelithiasis	5	41.7	71*	78.9	76	74.5
Cholecystitis	2	16.6	6	6.7	8	7.8
Carcinoma of gallbladder	..	....	3	3.3	3	2.9
Sarcoma of gallbladder	..	....	1	1.1	1	1.0
Carcinoma of pancreas †	..	....	1	1.1	1	1.0
Carcinoma of stomach †	..	....	1	1.1	1	1.0
Cirrhosis of the liver	2	16.6	..	....	2	2.0
Tuberculous peritonitis †	..	....	1	1.1	1	1.0
Gallbladder normal; no organic disease found	3	25.0	6	6.7	9	8.8
Total	12	100	90	100	102	100

* Two of these diagnoses were confirmed at autopsy instead of at operation.

† Gallbladder was reported normal at operation but was not removed.

these with the results shown in table 4. It should be emphasized that the basis for operative intervention in this group has been the clinical diagnosis together with the cholecystographic observations, not the latter alone. Seven (58.3 per cent) of the twelve patients with a faint visualization were found to have cholecystic disease, whereas three (25.0 per cent) had definitely normal gallbladders. In this small group the accuracy of the clinical diagnosis plus the faint visualization was only 58.3 per cent with a definite error in 25.0 per cent. In the group, on the other hand, in which the diagnosis was based on the clinical evidence plus a nonvisualization of the gallbladder, eighty-one (90 per cent) of the ninety patients were found to have an abnormal gallbladder, three had some other type of intra-abdominal disease and six had no demonstrable lesion either in the gallbladder or elsewhere. In these six cases, three of which will be reported in detail, the gallbladder was removed and found to be normal microscopically. In this series, then, the accuracy of the clinical diagnosis of gallbladder disease, when coupled with a nonvisualization of the gallbladder, is 90 per cent with a definite error of 6.7 per cent, some other disease being present in three cases (3.3 per cent): carcinoma of the stomach, carcinoma of the pancreas, and tuberculous peritonitis.

2. Bockus, H. L.; Shay, Harry; Willard, J. H., and Pessel, J. F.: Comparison of Biliary Drainage and Cholecystography in Gallstone Diagnosis, J. A. M. A. **96**: 311 (Jan. 31) 1931.

In the last instance, that of tuberculous peritonitis, the dye had been given on two separate occasions with a questionable faint visualization the first time and nonvisualization the second.

There have been 124 cases of faint visualization and 119 of nonvisualization in which an anatomic check of the diagnoses has not been available and in which there has been no clinical evidence of disease of the biliary tract, the various diagnoses being similar to those given in table 2. It seems reasonable to assume, however, that the accuracy of the diagnosis is not higher and probably is very much lower than that found in those cases in which operation was done because of the combined clinical and cholecystographic evidence; i. e., 58.3 per cent in the cases of faint visualization and 90 per cent in those of nonvisualization.

TABLE 5.—*Results of Repetition of the Test in Nonoperative Cases of Faint Visualization of the Gallbladder with No Clinical Evidence of Disease of the Biliary Tract*

	Results of Second Examination			
Clinical Diagnosis	Nonvisualization	Faint Visualization	Good Visualization Without Stone	Total
Bowel distress (colitis)	..	..	3	3
Duodenal ulcer	..	..	3	3
Gastric ulcer	1	..	..	1
Total	1 (14%)	..	6 (86%)	7 (100%)

In thirty-one of these cases, the accuracy of the cholecystographic diagnosis has been tested by a repetition of the examination, the results being shown in tables 5 and 6. All of the cases of faint visualization included in table 6 have given a good visualization on the second examination except one, which has resulted in nonvisualization. If it is assumed that this one case is really one of cholecystitis and that the others represent normal gallbladders, the accuracy of a faint visualization in the diagnosis of cholecystic disease in this group is only 14 per cent, and the error 86 per cent.

TABLE 6.—*Results of Repetition of the Test in Nonoperative Cases of Nonvisualization of the Gallbladder with No Clinical Evidence of Disease of the Biliary Tract*

	Results of Second Examination			
Clinical Diagnosis	Nonvisualization	Faint Visualization	Good Visualization Without Stone	Total
Arthritis of spine	..	1	..	1
Bowel distress (colitis)	2	4	1	7
Chronic cystitis	1	..	..	1
Duodenal ulcer	3	3	4	10
Gastric ulcer	..	..	1	1
Jejunal ulcer	..	..	1	1
Nervous vomiting	..	..	1	1
No organic disease	..	1	..	1
Postoperative adhesions	1	..	..	1
Total	7 (29.2%)	9 (37.5%)	8 (33.3%)	24 (100%)

When the same criteria are used, the results of repetition of the test in the cases of nonvisualization of the gallbladder without clinical evidence of disease of the biliary tract, shown in table 6, the accuracy of a nonvisualization alone is only 29.2 per cent, 37.5 per cent are doubtful, and 33.3 per cent are definitely incorrect.

REPORT OF CASES

In order to illustrate and emphasize the danger of relying entirely on the cholecystographic examination, three of the cases mentioned are herewith presented in detail:

CASE 1.—A single white woman, aged 23, admitted with the complaints of mild distress in both lower quadrants of the abdomen of three years' duration, and of constipation for two and one-half years, had had irregular attacks of pain localized to the right epigastrium associated with nausea and vomiting, for three months previous to admission. These had usually appeared a few minutes after eating, had been so severe that they caused her to double up and cry, and had lasted from a few minutes to several hours. The physical examination was essentially normal except for rather generalized abdominal tenderness. Routine analysis of the blood, urine, stool and gastric contents was negative. Cholecystographic examination, Dec. 2, 1929, was reported as nonvisualization with no evidence of stone. This was repeated, December 16, and again resulted in nonvisualization. The attending physician's note, December 18, reads as follows: "The clinical diagnosis involves a difficult differentiation between functional bowel distress and gallbladder disease. The distress is suggestive of cholecystitis although it is not localized to the gallbladder region. Two intravenous Graham-Cole tests have failed to visualize the gallbladder. On the basis of the above, I believe cholecystectomy is indicated but suspect that it will not give complete relief from the distress." A cholecystectomy was performed, December 26. The operative and pathologic reports state that the gallbladder was essentially normal. Ten days after discharge the patient was seen in the outpatient clinic and the following note appears on her chart: "Patient returns saying that she has the same pain as before the operation." Following the institution of a bland, low-residue, nonlaxative diet, the distress disappeared.

CASE 2.—A married white man, aged 44, entered the clinic complaining of distress in the upper abdominal tract of fifteen years' duration, which bore the typical ulcer relationships to food taking. The roentgenologic examination revealed a frank duodenal ulcer and a nonvisualization of the gallbladder. Because the history was that of ulcer and not of cholecystic disease, he was placed on medical ulcer management, which he followed only fairly well after his discharge from the hospital. Nearly two years later his ulcer distress reappeared and he reentered the hospital. At this time he stated that, in addition to the ulcer distress, he had had two episodes of severe night pain. These attacks occurred after eating heavy midnight suppers, one six weeks and the other four weeks previous to admission. The distress was widespread across the epigastrium, radiated through to the back, was so severe that he was doubled up with pain, and kept him awake most of the night. For a week previous to admission there was considerable nausea and vomiting. Physical examination revealed tenderness in the epigastrium and right upper quadrant. Roentgenologic examination at this time showed a duodenal ulcer with high grade stenosis and again revealed nonvisualization of the gallbladder. At operation a few days later a stenotic ulcer was found but the gallbladder was so perfectly normal grossly that the surgeon was unwilling to remove it. Since the operation there has been no return of the distress.

CASE 3.—A married white woman, aged 27, admitted to the clinic, complained of anorexia, frequent nausea, vomiting, distress in the upper abdominal tract immediately after eating, and constipation requiring cathartics, all present for six years. Domestic difficulties had caused considerable emotional disturbance and had resulted in a separation from her husband six months previously. A short period of dietary treatment had resulted in no improvement. Attacks of abdominal pain had soon appeared, located at first in the right lower quadrant, then in the left lower quadrant, in the epigastrium and occasionally in the right upper quadrant, variable in nature, but frequently so severe that opiates had been required. She was admitted to the hospital during an attack of pain in the right lower quadrant, radiating into the right side of the vulva. Physical examination was essentially negative except for generalized abdominal tenderness, especially in the two lower quadrants, the right upper quadrant and the epigastrium. The temperature was normal; the white blood count was 11,600. Urinalysis was normal except for the finding of a few red blood cells.

Morphine was required to relieve the pain, and the following morning the attack was found to have subsided completely. Subsequent urologic examination failed to reveal any evidence of disease in the urinary tract.

Cholecystographic examination, when the patient was first seen, had revealed nonvisualization of the gallbladder. This was repeated two months later with the same result. In view of the complete absence of objective evidence of disease elsewhere, the patient was referred to surgery for cholecystectomy, although it was recognized that the clinical picture was not typically that of biliary disease. Examination of the gallbladder showed it to be normal both grossly and microscopically. The patient remained symptom free for about six weeks after her discharge from the hospital and then returned to the

TABLE 7.—*Diagnostic Value of a History of Colic as Compared with Cholecystographic Data*

Diagnosis at Operation	History of Colic			Cholecystographic Observations				
				Stones	Visualization			
	Present	Absent	Total	Demonstrated	None	Faint	Good	Total
Cholelithiasis..	113 90.1%	13 9.9%	131 100%	55 42.0%	69 52.7%	5 3.8%	2* 1.5%	131 100%
Definite cholecystitis without stone.....	7 77.8%	2 22.2%	9 100%	..	6 66.7%	2 22.2%	1 11.1%	9 100%

* Errors due to poor technic in one instance and incorrect interpretation in the other.

outpatient department, stating that the nausea, vomiting and mild abdominal distress had returned. Strict management of the intestinal distress was then instituted with only partial relief of the distress.

It seems to us necessary to conclude that in each of these three cases the gallbladder was normal even though it was not visualized in either of two examinations.

It has been implied in this paper that, aside from the actual demonstration of stone, cholecystographic evidence of cholecystic disease is of the greatest value when it confirms the clinical diagnosis. It thus becomes of interest to compare the frequency of biliary colic with that of positive cholecystographic evidence in cases in which operation reveals the presence of gallbladder disease. The results are shown in table 7.

When stones were present, colic was recorded in 90 per cent of the cases and positive cholecystographic evidence in 94.7 per cent.

COMMENT

The diagnostic value of cholecystography seems quite clear in certain respects. The percentage of accuracy is probably above 98 when a good visualization of the gallbladder is found and no stone shadows are seen. On the other hand, an apparently normal gallbladder occasionally shows a faint visualization or none at all. The actual demonstration of opaque or nonopaque stones is the most conclusive evidence of cholelithiasis.

The greatest difficulty has been encountered in evaluating faint visualization or nonvisualization of the gallbladder. From the clinical standpoint, it is advisable to consider seriously the cholecystographic report of a faint or a total absence of visualization of the gallbladder only if it corroborates the clinical history. This is illustrated by the following figures: When the diagnosis of gallbladder disease was based on a faint visualization together with the clinical history, it was found correct at operation in 58.3 per cent of the cases; when based on a faint visualization alone, it was probably correct in only 14 per cent of the cases. Similarly, when the diagnosis of cholecystic disease was made from nonvisualization together with the clinical history, it was later proved anatomically to be correct in 90 per cent of the cases; whereas nonvisualization in the absence of clinical symptoms was proved by repetition of the test to be incorrect in at least 33.3 per cent of the instances.

In proved cases of cholelithiasis, a history of biliary colic was encountered with almost the same frequency as was cholecystographic evidence of gallbladder disease.

CONCLUSIONS

1. A good visualization of the gallbladder by cholecystography with no evidence of stones indicates a normal gallbladder in a very high percentage of the cases. Exact figures as to its accuracy are difficult to give.
2. The accuracy of diagnosis when stones are demonstrated as positive or negative shadows approaches 100 per cent.
3. The accuracy of a faint visualization, when combined with a clinical history suggestive of biliary disease, is 58.3 per cent; that of nonvisualization when combined with a positive clinical history, 90 per cent.
4. In the absence of a clinical history suggestive of gallbladder disease, the accuracy of a faint visualization is less than 14 per cent; that of nonvisualization, considerably less than 66.6 per cent.
5. In the cases in which cholecystic disease was found at operation, a history of colic was noted almost as frequently as was cholecystographic evidence of gallbladder disease.

SODIUM CARBONATE (MONOHYDRATED) IN THE TREATMENT OF VERNAL CONJUNCTIVITIS

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I advocate the use of sodium carbonate in solution, 5 and 10 grains to the ounce of water (0.3 and 0.65 Gm. to 30 cc.), instilled three drops, four times daily, during the active stages of vernal conjunctivitis, both limbic and palpebral. As a supplement, the eye should be irrigated with cold boric acid solution by means of an eye cup, seven times daily.

Having proved that vernal conjunctivitis is an ocular manifestation of an allergy due principally to dusts and pollens, and having observed that desensitization by means of dusts and pollens does not always effect immediate relief, I [1] came to the conclusion that the avenue of approach in the treatment of this disease would be to render inert the exciting agents that enter the eye, or at least to remove them from the eye in such quantities as to minimize the degree of contact and thus keep the patient comparatively free from the clinical symptoms of this disease.

I have described on previous occasions the characteristic chewing gum mucus, which is seen in no other ocular disease. The patients invariably state that the itching, which is the most distressing symptom, is relieved after rubbing the eyes and removing what they call long, stringy "pus." This mucus is not readily removed in its entirety except by mechanical means with an applicator tipped with cotton, about which it is wound by rolling the applicator between the fingers.

Read before the Ophthalmological Section, College of Physicians, Philadelphia, Dec. 15, 1932.

1. Lehrfeld, Louis: Vernal Conjunctivitis, Arch. Ophth. 8:380 (Sept.) 1932.

It is found to be continuous in structure and bound down in the crevices between the follicles in the palpebral type of vernal conjunctivitis. The limbic type, as is well known, has very little mucus.

Microscopic examination of this discharge of the eyes reveals that it consists of mucus containing polymorphonuclear leukocytes, mononuclear leukocytes, eosinophils and epithelial cells.

Realizing that itching is relieved on removal of the mucus, I decided that the treatment should be directed toward rendering this mucus soluble so that it may be readily washed from the eyes. After experimenting over a long period as to the solubility of this mucus, using various strengths of acetic acid, hydrochloric acid, sulphuric acid, sodium bicarbonate, caroid, fibrolysin, chloroform, and sodium ricinoleate, I struck on the use of monohydrated sodium carbonate, U. S. P.

When the hands are bathed in washing soda, the commercial form of sodium carbonate, the skin becomes very soft, particularly the cuticle about the finger nails. I planned to try it as an agent to render soluble the mucus taken from the eyes of patients with vernal conjunctivitis. As washing soda is a very unstable compound containing ten molecules of water and many impurities, I used the standardized product of the United States Pharmacopeia, containing one molecule of water. I set up a series of test tubes, each containing specimens of mucus from patients with vernal conjunctivitis, at the Wills Hospital and in my private practice. Much discouraged in finding a solvent, I set my rack of test tubes aside, waiting for another inspiration. Some time later I consulted Mr. Joseph W. E. Harrisson, an associate of Prof. Charles LaWall of the Philadelphia College of Pharmacy, who by chance was a patient at my office. Picking up a group of test tubes, I asked him if he could tell me in which he would consider the mucus dissolved, if any. He selected the tube containing the sodium carbonate, informing me that the mucus had disintegrated and that a clear solution was not necessary to consider it dissolved.

It then occurred to me that it was unnecessary to have a complete solution of the mucus in order to release its hold on the lid surfaces in vernal conjunctivitis, if the mucus was sufficiently disintegrated so that it might be readily washed away. This could be accomplished by thorough flushings of the eye by means of an eye cup containing any solution pleasant to the eyes.

An alkali such as tenth normal sodium hydroxide is used to render soluble the powdered pollens in making the scratch tests for sensitivity. Sodium carbonate, which is also an alkali and a solvent of mucus, will render soluble the dusts and pollens that enter the eye, along with the mucus to which the dust particles adhere. I felt that with sodium carbonate and the use of frequent flushings of any solution, boric acid for convenience, I would have a treatment that would give the patient relief. I accordingly made solutions of sodium carbonate, 5, 10 and 15 grains to the ounce. I found that the solution of 15 grains (1 Gm.) applied to the lids of patients with vernal conjunctivitis was somewhat irritating. Ten grains was tolerated. Five grains caused no complaint on the part of the patient.

In my test tube experiments, I used approximately 10 per cent sodium carbonate. This solution, of course, is too strong for the eye, and realizing that it was not necessary to dissolve the mucus completely but merely to loosen it from its attachments, I found repeated use of this preparation in solution 5 grains to the ounce was sufficient to keep the conjunctiva completely alkalinized and was sufficient to disintegrate the mucus so as to make it readily removable by flushings from an eye cup.

Still working under the theory that thorough and repeated flushings of the eye will wash out the dusts and pollens that could readily be reached on the conjunctival surface, I continued this method of treatment in conjunction with the use of sodium carbonate, three drops, four times a day, the boric acid flushings always preceding the instillation of sodium carbonate.

In order to make sure that the patients were getting sufficient sodium carbonate, I tested the alkalinity of the conjunctiva with litmus paper and found in each instance that the alkalinization had persisted.

Up to the present time I regarded epinephrine as the most effective drug in the treatment of this disease. I learned that epinephrine is disintegrated in the presence of an alkali, particularly sodium carbonate. As a substitute for epinephrine I used cold boric acid solution at a temperature which one commonly finds in the average household icebox, about 55 F., where the solution can be kept. The cold lotion is sufficient to act as an astringent and the boric acid maintains its cleansing effect.

Boric acid, being but feebly acid, does not in any way interfere or render appreciably less alkaline the sodium carbonate. Patients having had the disease for several seasons can comfortably tolerate 10 grains of sodium carbonate in the eyes.

I was agreeably surprised to find that patients were remarkably relieved of the itching and that the discharge gradually disappeared.

Just what effect the sodium carbonate has on the pollens and dusts, I am not prepared to state at this time, but I do know that it enables the ready dislodgment of the mucus which aggravates and intensifies the itching, and that associated with the thorough flushings of the eye with boric acid solution there is effected a rapid alleviation of symptoms and reduction in the size of the follicles.

I do not claim that this treatment will change the pathologic condition in the chronic lid types in which large granulomas exist, because this is a secondary pathologic change which can be removed only by surgery or radium. In the initial stages of the disease, during the first and even the second summers, the pathologic condition disappears when the exciting cause is removed by the treatment just outlined.

It is my belief that the sodium carbonate treatment is not sufficient in itself but must be accompanied with the thorough flushings of cold boric acid solution at least seven times a day. It is sufficient to use three drops of sodium carbonate four times a day, always preceded by the boric acid flush, thus permitting ample time for partial disintegration of the mucus and the theoretical destruction of the active principles in the dusts and pollens which are the causative agents.

Last summer I used this treatment in twenty-seven cases and found that it excelled any other drugs or chemicals heretofore used by me. The disappearance of the discharge, the rapid and complete relief from itching, and the recession of the pathologic condition have been so convincingly striking as to deserve reporting the facts and observations.

I reported the results of my experiments to Dr. John Kolmer, who regards the effects as plausible and hints

that he would not be surprised if the same method of treatment might apply to hay fever.

I present this treatment to the ophthalmologic profession only after thorough scientific investigation of the disease; only after proving that desensitization is slow, tedious and ofttimes ineffective in its results; only after observing that radium is of limited use in relief of symptoms and then only in the hands of expert radiologists; only after applying all the known forms of treatment, and only after careful search for a remedy which can be applied throughout the course of the spring and summer months when pollens and certain dusts, influenced by weather, are the exciting agents of the disease.

The treatment is not aimed to desensitize, nor is it aimed to prevent the disease. It merely serves as a chemical agent with a rational and scientific basis to render inert the exciting agents, which must be kept frequently flushed from the eyes during the period in which the disease is active.

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Clinical Notes, Suggestions and New Instruments

DYSINSULINISM: A DISCUSSION AND CASE REPORT

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Naming diabetes mellitus on the basis of its aberrant endocrine physiology, one would call the disease hypo-insulinism. In this disease hyperglycemia and glycosuria are essential features. The discovery of insulin by Banting, Best and their co-workers led to the rational therapy of this disease and to the discovery of perhaps two others—hyperinsulinism and dysinsulinism.

Insulin, when given in overdosage to diabetic patients, causes a train of symptoms that is very well known. There is a feeling of nervousness, hunger and weakness accompanied by a profuse sweat, dizziness, diplopia, pallor, faintness, syncope and convulsions; ultimately, coma may result. From this reaction, which is more or less acute in its onset, the patient can be aroused dramatically in a few moments by the administration of carbohydrates.

Seale Harris had noted patients who presented symptom complexes very similar to those obtained in diabetic patients during insulin shock. He was the first to reason that perhaps these patients actually had a spontaneous hypoglycemia of intrinsic origin. In 1924 he[1] reported three cases that had come under his observation, the patients complaining of weakness, nervousness, and hunger one hour before meals, from which relief was obtained by eating carbohydrate in some form. Accompanying these symptoms, blood sugar determinations in every case were below 70 mg. per hundred cubic centimeters of blood. He also noted that one of these patients showed evidence of both hyperinsulinism and hypo-insulinism, and to this case he gave the diagnosis of dysinsulinism. Soon thereafter Jonas[2] reported a case.

These observations were confirmed by Wilder, Allen, Power and Robertson,[3] who reported a case in which necropsy showed adenocarcinoma of the islet tissue with metastases to the lymph nodes and the liver. Extracts of the metastatic areas in the latter organ were proved to contain insulin. Similar reports have been made by McClenahan and Norris,[4] and Thalhimer and Murphy.[5] Howland, Campbell, Maltby and Robinson[6] reported the first cure by surgical means; i. e., removal of islet cell tumor. Cushing,[7] Womack, Gnagi and Graham,[8] and Carr, Parker, Grove, Fisher and Larrimore[9] have also reported successful surgical cures. The Finneys,[10] in operating on their patients, failed to find a distinct tumor and resected a portion of the pancreas, with mild improvement. Warren[11] gives an excellent description of adenomas of the islets of Langerhans, and Harris,[12] in 1932, collected all the cases reported on this continent. A case in Germany is reported by Krause,[13] and more recently John[14] and Heyn[15] have reported cases, while Elias and Turner[16] reported four cases in children. It is interesting that many of these patients have been physicians.

REPORT OF CASE

The following is a case which came under my observation:

History.—S. L., a white man, aged 37, a war veteran, was admitted to the Naval Hospital, Brooklyn, with a diagnosis of diabetes mellitus. He presented none of the complaints given by diabetic patients, except that he was told he had sugar in his urine and that he had lost much weight. He complained of malleolar edema in the evenings, weakness, dyspnea on exertion, and a diarrhea of four or five daily stools with mucus. He also stated that he had weighed 230 pounds (105 Kg.) four years before, while his present weight was 150 pounds (68 Kg.). He had also noted that for the past seven months he had had occasional attacks of weak feeling and haziness, which cleared up immediately after taking orange juice.

A year before he was in this hospital and study showed him to have a chronic ulcerative colitis. He had also had the usual exhaustive study at the Mayo Clinic, and the same condition had been found there. They found a normal blood sugar at that time. His appendix and gallbladder were removed in 1930. The patient stated that he had not had any venereal diseases. He had a submucous resection, after which a perforation of the septum resulted.

His family history revealed no chronic, hereditary or familial disease. The patient's habits were normal in every respect. He indulged in alcohol and tobacco in moderation.

Physical Examination.—The patient was pale and undernourished and was not acutely ill. Positive conditions found at examination included pallor of the sclerae and mucous membranes. The skin showed definite evidence of loss of weight. He had a perforated nasal septum and chronically inflamed tonsils. There was a soft systolic murmur at the apex of the heart transmitted to the axilla. There was a slight pitting edema of the ankle. The blood pressure was 102 systolic, 62 diastolic.

Progress.—April 30, the fasting blood sugar was 110 mg. per hundred cubic centimeters of whole blood. The patient was given small doses of digitalis.

May 2, the fasting blood sugar was 148; the urine sugar, 0.3 per cent.

May 3, the blood sugar was 100; the urine sugar, 0.3 per cent.

May 4, the patient was placed on a diet of carbohydrates 84, proteins 61 and fats 94. The noon urine showed 0.6 per cent sugar; blood sugar, 81.

From the Medical Service of the United States Naval Hospital.

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13. Krause, F.: Hyperinsulinism with Hypoglycemia Syndrome, Klin. Wchnschr. **9**: 2346-2349 (Dec. 13) 1930.
14. John, H. J.: Hyperinsulinism: Report of a Case, J. A. M. A. **97**: 1708-1709 (Dec. 5) 1931.
15. Heyn, L. G.: Hyperinsulinism, J. A. M. A. **98**: 1441-1443 (April 23) 1932.
16. Elias, H. L., and Turner, Reuben: Hypoglycemic Shock in Children: Report of Four Cases, J. A. M. A. **98**: 2198-2199 (June 18) 1932.

May 5, the fasting blood sugar was 60. At 11:30 p. m. the patient had an attack of diplopia, weakness, muscle tremor and sweating, and he became unconscious. He was immediately revived by orange juice. Blood sugar drawn at this time measured 44 mg. The next morning the blood sugar was 112, but the urine contained 1 plus acetone. During the week, a complete blood count and a urinalysis were normal, and the Kahn test was negative.

May 6, the patient had a mild reaction but immediately responded to orange juice.

May 7, a dextrose tolerance test showed the following: Blood: fasting, 54; first hour, 476; second hour, 417; third hour, 204. Urine: fasting, 0; first hour, 3.0 per cent; third hour, 2.0 per cent. A roentgenogram of the heart suggested mitral stenosis. An electrocardiogram showed a depressed ST interval in leads 1 and 3, indicative of coronary involvement.

May 9 and 10, the fasting blood sugars were 56, and just before the noon meal the patient had a slight reaction but, with food, immediately recovered.

May 11, the fasting blood sugar was 68, and fifteen minutes after epinephrine was given by hypodermic it was 100. The diet was changed to carbohydrate 109, protein 66 and fat 119.

May 12, the fasting blood pressure was 68. After 1 cc. of solution of pituitary, 68. Daily studies of stools were negative except for 2 plus occult blood. A proctoscopic examination revealed no pathologic changes.

May 14, a barium enema revealed no abnormalities. The blood sugar was 40.

May 16, the blood sugar taken during a reaction, was less than 25 mg. per hundred cubic centimeters of whole blood. The diet now was carbohydrate 159, protein 166 and fat 119.

May 17, blood sugars and electrocardiograms were taken simultaneously before and after a dextrose tolerance test. The following description is added: The patient arrived at 8:40 a. m., walking and very nervous. He was unable to lie still and sweated profusely. Pallor was very marked. The pulse was 86, and respirations were 20. The patient grew weaker, went into a sort of convulsion and fainted at the conclusion of the test. The blood sugar was less than 25 mg. per hundred cubic centimeters of whole blood. At 9 o'clock, he was given 100 Gm. of dextrose by mouth. When seen at 10:45, the patient's color was good and he had no symptoms. The blood sugar at this time was 333 mg. per hundred cubic centimeters of blood. There was no difference in the electrocardiographic examinations taken with a blood sugar at less than 25 mg. or at 333 mg.

May 20, the patient was placed on a regular diet with 8 ounces (240 cc.) of orange juice at 8 p. m., at midnight and at 6 a. m.

June 4, the blood sugar taken during an attack was again less than 25. In the attack he had a rather marked pallor. His eyes were more or less fixed and his skin was cold. He would not answer questions. Attempts to give orange juice were unsuccessful, and it was necessary to give dextrose intravenously. Before the injection was completed, the patient was laughing and joking as though nothing had happened. Investigation revealed that the patient failed to obey instructions and failed to take his additional carbohydrate. This was his last attack while in the hospital.

June 7, The patient's urine contained 1 per cent sugar. A gastro-intestinal series of roentgenograms showed a marked widening of the duodenal curve, suggesting a pancreatic tumor. There was also a displacement of the bulbus duodeni to the right.

June 9, 0.3 per cent sugar was found in the urine; red blood cells numbered 4 million; hemoglobin was 83 per cent.

June 13, 2.5 per cent sugar was found in the urine. Antianemic therapy was instituted.

June 20, the blood sugar was 68. Red blood cells numbered 3.7 million.

June 27, the blood sugar was 50. Red blood cells numbered 3.4 million with 70 per cent hemoglobin; white blood cells, 10,000; polymorphonuclears, 67 per cent; lymphocytes, 31 per cent. The patient had an acute bronchitis and decompensation returned.

July 1, the patient recovered from his acute infection; edema disappeared for the most part. The red blood cells numbered 3.3 million; hemoglobin was 65 per cent.

July 11, the patient was seen in consultation with Dr. James Ewing of the Memorial Hospital. He suggested a roentgenogram of the sella turcica and the Aschheim-Zondek test.

July 18, the Aschheim-Zondek test was negative. A roentgenogram of the sella turcica showed no deviations from the normal.

July 27, the red blood cells numbered 4 million; hemoglobin was 75 per cent; white blood cells numbered 6,350.

August 9, the blood count was normal. The surgical consultant recommended exploratory operation, but the patient refused, in view of his recent marked improvement.

August 18, the Aschheim-Zondek test was again negative. The blood sugar was 70.

August 24, the patient was discharged at his own request. The final diagnoses were: (1) dysinsulinism (adenoma or adenocarcinoma of pancreatic islets) symptomatically controlled; (2) valvular heart disease and mitral stenosis, no change; (3) chronic ulcerative colitis; (4) chronic myocarditis, class 2a, improved; (5) mild secondary anemia, improved; (6) chronic tonsillitis, no change.

COMMENT

This case is interesting because on three occasions the patient had a blood sugar of less than 25 mg. of sugar per hundred cubic centimeters of whole blood. (All determinations were done according to the method of Folin and Wu.) This is the lowest that I have been able to find in any other case reported thus far. Furthermore, this patient could tolerate a hypoglycemia of 50 without symptoms, whereas usually if the blood sugar drops below 70, hypoglycemic or insulin shock ensues. It is another example of bodily adaptability to morbid conditions.

The diagnosis of dysinsulinism is given in this case because in addition to the patient's hypoglycemic reactions, which are due to hyperinsulin activity, when he is given a dextrose tolerance test he shows a typical diabetic response. Moreover, he shows transient hyperglycemia, glycosuria and acetonuria, which are due to hypo-insulin activity. Either the threshold of insulin production is higher than normal, and when produced is overactive, or else an insulin-like substance is produced which is delayed in its action but which, when acting, has a more powerful effect than normal insulin—a true dysinsulin.

It is my belief that this patient has either an adenoma or, possibly, an adenocarcinoma of the islet tissue. The condition is so well controlled by a frequent carbohydrate diet that he refuses operative intervention. The colitis and cardiac manifestations are believed to be independent of the dysinsulinism, as they seemed not to change whether the dysinsulinism was controlled or not. The colitis at least existed for three and a half years before the onset of the dysinsulinism.

Etiology.—These conditions are caused by adenomas or adenocarcinomas of the pancreatic islet tissue. Other endocrine neoplasms, especially of the suprarenal medulla,[17] conceivably might mimic this syndrome. It is also possible that diffuse hyperlasia of the islet tissue might be present in some instances.

Pathology.—Anatomically the pathologic changes are those just mentioned. Physiologically, either an overproduction of normal insulin or a true dysinsulin is produced. The hypoglycemia is of course the cause of the clinical symptoms.

Diagnosis.—While this is a rare condition, the diagnosis appears to be easy to make. It is clinched by finding a spontaneous hypoglycemia concurrently with the impending or actual syndrome. Whether or not the case is one of hyperinsulinism or dysinsulinism depends on the response to the dextrose tolerance test and on the presence of transient hyperglycemia and glycosuria. In the former, the response to a dextrose tolerance test should be normal or subnormal, and there should be no hyperglycemia or glycosuria. In the latter, the reactions are like those of a diabetic patient. Very often the patients seem to have found themselves that carbohydrates relieve them and present it in their history. The relationship to meals, in that attacks occur soon before meals or when the patient has had a long period without food, is almost diagnostically suggestive. In regard to differential diagnosis, it must be remembered in all cases of coma, but more especially with some cases of epileptiform seizures.[18]

17. Anderson, H. B.: A Tumor of the Adrenal Gland with Fatal Hypoglycemia, Am. J. M. Sc. **180**: 71-79 (July) 1930.
18. Neilsen, J. M., and Eggleston, E. L.: Functional Dysinsulinism with Epileptiform Seizures, J. A. M. A. **94**: 860-863 (March 22) 1930.

Treatment.—Symptomatically relief is obtained by giving to the patient carbohydrate, by mouth or vein. If none is available, epinephrine by hypodermic should be used. A frequent carbohydrate diet may symptomatically control the condition. A true cure, however, can be expected only by surgical removal of the offending neoplasm. This, however, has not always been found, and partial resection of the pancreas has not given satisfactory results.

CONCLUSIONS

1. A case of dysinsulinism showing both features of hypoinsulinism and hyperinsulinism presented on three occasions a hypoglycemia of less than 25 mg. of sugar per hundred cubic centimeters of whole blood. This is the lowest I have seen reported.

2. The basic pathologic condition as well as the etiology is probably adenoma or adenocarcinoma of the pancreatic islet tissue.

3. The patient's symptoms are well controlled by frequent carbohydrate feeding.

263 Flushing Avenue.

COSTOVERTEBRAL DISLOCATION OF THE TWELFTH RIB

W. R. BROOKSHER, JR., M.D., FORT SMITH, ARK.

Dislocation of the ribs at their vertebral articulations is a very rare injury. Textbooks refer to the condition briefly or not at all. The literature is similarly meager in references. Schertlein [1] says that there is but one recorded case in the German literature from 1909 to 1929 and cites Riedinger, who in 1888 compiled nine cases from the literature, of which only one could be regarded as a true luxation. Stewart and Warren [2] published a review of ten cases and mention two others from the literature of over 200 years, adding a case of their own. Theirs is the only article on the subject in American literature since 1896 and the latter deals with a dislocation at the sternal extremity.[3] Three cases have been reported since then in the German literature.[4]

Downward dislocation of right twelfth rib.

Separation or dislocation of a rib may occur at its sternal or its vertebral attachment. The displacement may be forward, backward, up or down. Approximately one half of the cases reported are of the eleventh and twelfth ribs, which fact is of etiologic significance in that these ribs are not attached anteriorly by cartilage. The anterior ends of the ninth and tenth ribs may be dislocated from their cartilaginous attachments to the adjacent ribs. Dislocation at the costovertebral articulation is most frequently found as a complication of fracture of the spine.

The rarity of vertebral dislocation is due to the firm and strong ligamentous attachments at this site, which make fracture the more likely injury to occur. For the production of such a dislocation, a violent and complex acting force is required. Indirect violence is the principal cause, since its force is transmitted to the costal attachments, although the condition may be produced by direct violence. The degree of violence producing the injury was sufficient to cause death in eight of the ten cases reviewed by Stewart and Warren, and in seven of the nine cases compiled by Schwartz.[5]

Complications of pleural and pulmonary injury or abscess formation may be very grave. There may be laceration of the intercostal artery and severe hemorrhage into the pleural cavity.

Roentgen examination will always demonstrate the injury, but it may be noted on physical examination by (1) swelling or depression at the articulation, (2) motility (pressure at one extremity moves the other), and (3) anesthesia or paresthesia with neck rigidity when the first rib is involved. Pain is usually present.

Treatment will of necessity be individualized, strapping or bandaging of the chest appearing to be satisfactory in uncomplicated cases of the lower ribs. Reduction by pressure prior to immobilization can usually be accomplished. In the depressed type, open reduction may be necessary, especially if there is respiratory embarrassment. In the case reported by Stewart and Warren, the first rib was involved and exposure was obtained by an oblique incision over the clavicle. The rib was then drawn upward into the articulation by means of a hook. The brachial plexus and subclavian artery, which had been displaced by the injury with the production of anesthesia, analgesia and paresis, returned to their usual positions and the disturbances disappeared.

The following case, involving a complete dislocation of the twelfth right rib without associated fracture of the ribs or spine or lung injury, is the seventeenth recorded case:

D. P., a man, aged 25, was injured, May 9, 1931, as the result of an accident while driving his car. A front wheel suddenly locked, causing the car to strike an earthen embankment on the side of the road. The car then turned on its left side. The patient was stunned for a short time and he does not know in what manner his injury was received. He proceeded to the office of a nearby physician, who strapped his chest with adhesive plaster after diagnosing fracture of the ribs. The following day the patient consulted his home physician, Dr. Hugh Johnson, through whose courtesy the case is reported. The subsequent progress not being satisfactory, he was referred to me for roentgen examination, at which time the downward dislocation of the twelfth right rib was discovered, as shown in the accompanying illustration. There was no fracture of the ribs or spine. Examination of the lungs gave negative results. A depression was noted at the point of the dislocation, with tenderness on pressure. The patient complained of pain on movements of the arms, when lifting any weight, when stooping or bending and on deep inspiration. Immobilization by means of adhesive plaster was continued, with the gradual disappearance of all symptoms.

610 First National Bank Building.

1. Schertlein, A.: Isolated Costovertebral Dislocations of the First Rib, Fortschr. a. d. Geb. d. Röntgenstrahlen **39**: 482-485 (March) 1929.
2. Stewart, S. F., and Warren, J. W.: Luxation of Costovertebral Joints, J. A. M. A. **92**: 605 (Feb. 23) 1929.
3. McCosh, A. J.: Case of Sternal Dislocation of Second and Third Costal Cartilages and of Clavicle, with Fracture of Fourth and Fifth Cartilages; Pneumonia, Pericarditis, M. & S. Rep. Presb. Hosp., New York **1**: 203-205, 1896.
4. Schertlein.[1] Bohle, W.: On Dislocation of Ribs, Arch. f. Orthop. **27**: 269-272 (May 23) 1929.
5. Schwartz, quoted in Ochsner, A. J.: Surgical Diagnosis and Treatment, Philadelphia, Lea & Febiger **2**: 228, 1921.

LOCALIZED HEADACHE ASSOCIATED WITH LESION OF MENINGEAL VESSELS

WINCHELL MCKENDREE CRAIG, M.D., ROCHESTER, MINN.

Generalized headache, or cephalagia, may be a symptom of many different diseases and is of doubtful diagnostic significance unless associated with other symptoms of intracranial changes. Localized headache, however, is frequently of diagnostic significance and may indicate the region of intracranial involvement, as illustrated by the case here to be reported.

Intracranial operations under regional anesthesia have demonstrated that the brain is insensitive to pain and that the dura mater is probably the only sensitive tissue encountered; the greatest discomfort is caused by ligation or manipulation of the meningeal vessels.

According to Teachenor,[1] the dura has a rich and somewhat complicated nerve supply. It is supplied mainly from the fifth and tenth cranial nerves and the sympathetic system, although some fibers are derived from the fourth and twelfth cranial nerves. A branch of the mandibular division of the fifth nerve, which is given off directly after the exit of this division from the foramen ovale, and which passes backward to reenter the cranial cavity through the foramen spinosum, accompanies the

From the Section on Neurologic Surgery, the Mayo Clinic.

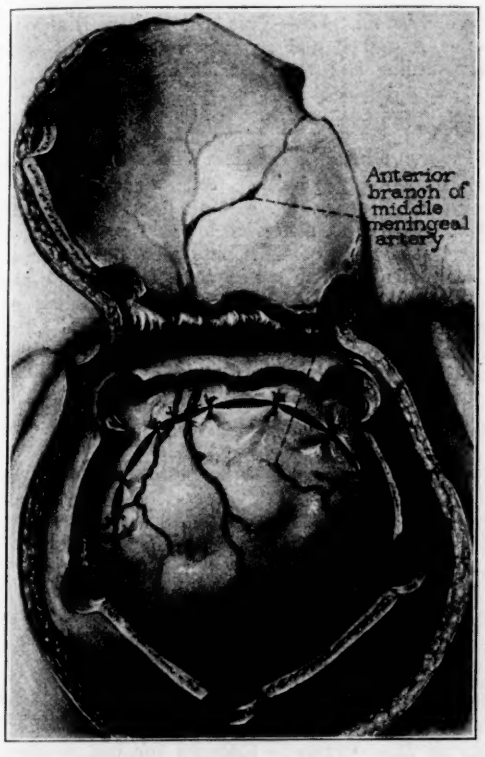
1. Teachenor, F. R.: Headaches of Intracranial Origin, Laryngoscope **37**: 320-325 (May) 1927.

middle meningeal artery in its distribution over the dura. This accounts for the excruciating pain when any of the branches of this artery are ligated and would explain a localized region of pain or of tenderness along this artery.

Dandy [2] has reported the successful treatment of the hemicrania of migraine by cervicothoracic sympathectomy, and Adson [3] has suggested ligation of the middle meningeal artery at the foramen spinosum for the same type of localized headache.

REPORT OF CASE

A man, aged 25, complained of localized headache in the left frontotemporal region. The pain had been present for about one year and had come on suddenly when the man was coughing in the course of an acute attack of coryza. The patient described the pain as a dull ache, with a sensation of pressure, and when he was coughing or sneezing it assumed a sharp, lancinating character, extending forward into the frontal region. About three months after its onset, following a fit of coughing, the pain became so severe that the patient collapsed and was unconscious for a short time.



The anomalous position of the anterior branch of the middle meningeal artery, and the operation after which the pain did not reappear.

General examination gave essentially negative results but did reveal a very tender area on palpation in the left frontotemporal region, just beneath the insertion of the temporal muscle on the parietal bone. This region was extremely tender to pressure, but when the temporal muscle was contracted tenderness could not be elicited. Roentgenograms of the head gave negative results, and bruits were not audible. The nasopharynx was apparently normal, and cocainization of the sphenopalatine ganglion on the left was not followed by relief of pain. In that the pain was of explosive type, it suggested trifacial neuralgia, involving the ophthalmic division of the fifth nerve; but no trigger area could be found, and on the whole the condition seemed less characteristic of trifacial neuralgia than of localized involvement of the anterior branch of the middle meningeal artery.

Because the pain was so disabling, craniotomy was performed to expose the middle meningeal artery. A small, osteoplastic flap was reflected over the left frontoparietal region, and the anterior branch of the middle meningeal artery was found embedded in the inner table of the skull, where it had eroded a tunnel-shaped passage through the bone rather than the shallow depression usually present. When the osteoplastic flap was elevated, that portion of the middle meningeal artery which was embedded in the bone was torn from its attachment to the dura and remained in the bone. The remaining portion of the middle meningeal artery attached to the dura was ligated, and the dura was incised in a semicircular fashion, as shown in the accompanying illustration. The edges of the dura were approximated with sutures of silk, and the wound was closed. The patient made an uneventful convalescence, and although he complained of localized discomfort in the region of the osteoplastic flap, the former pain had entirely disappeared and he could cough, sneeze, and bend the head forward without any discomfort.

In a letter received from the patient one year after he had been dismissed, he reported that he was completely relieved of headache and was working every day without any discomfort.

2. Dandy, W. E.: Treatment of Hemicrania (Migraine) by Removal of the Inferior Cervical and First Thoracic Sympathetic Ganglion, Bull. Johns Hopkins Hosp. **48**: 347-361 (June) 1931.
3. Adson, A. W.: Personal communication to the author.

HEMIPLEGIA DUE TO SMALLPOX

RAYMOND M. RICE, M.D., AND M. J. CAREY, M.D.
COUNCIL BLUFFS, IOWA

This case is reported because of the evident rarity of its occurrence. In searching for similar cases in the literature we found much discussion of encephalomyelitis following smallpox vaccination.[1] In a thesis dated 1872,[2] six cases are reported of paralysis occurring during smallpox or convalescence; Goss [3] reported a similar case, but none of these were hemiplegias. Mention is made in one modern textbook that hemiplegia due to smallpox has occurred.

REPORT OF CASE

History.—A white boy, aged 5 years, was one of five healthy children. The mother had had two miscarriages previous to his birth. He had contracted whooping cough and chickenpox during his third year.

May 27, 1932, he became nauseated, vomited and had a high temperature. The following three days he seemed well, and on May 31 the eruption of smallpox appeared. Two days later his mother noticed that he was unable to walk steadily and put him to bed. The following day she found that he was unable to use his right arm and leg and that his speech was unintelligible. Medical aid was summoned for the first time. He had had no noticeable fever and had seemed perfectly well since his prodromal symptoms.

Examination.—The patient was well developed and nourished. The temperature, pulse and respiration rate were normal. An extensive pustular eruption characteristic of smallpox covered his body. He had a complete flaccid hemiplegia involving the right side, including the face and tongue. His speech was thick and difficult to understand. He seemed normal mentally. Hearing, vision, sense of touch and pain all seemed normal. Patellar, achilles and abdominal reflexes were absent on the right side, and the right cremasteric was decreased. All these were normal on the left side. The biceps and triceps seemed equal bilaterally. The pupils reacted normally. The neck was not resistant and the Kernig sign was negative. General physical examination was otherwise negative.

The complete blood count was normal. The urine was negative except for a 1 plus albumin. The spinal fluid cell count was 17, and a slight globulin increase was noted. Wassermann tests of the spinal fluid and the blood were negative.

Progress.—Two days after the first symptoms of paralysis were noted, the patient could move his right leg slightly. The third day he was able to raise it off the bed. No change was noted in the right arm until the seventh day, at which time he could move it slightly. On the sixteenth day he was able to walk, although the right leg functioned poorly. The arm and hand were very weak and the speech was imperfect. He was again seen about six weeks after the onset, at which time he was almost normal.

1. Perritt, R. A., and Carrell, R. C.: Postvaccinal Myelitis, J. A. M. A. **94**: 793 (March 15) 1930. Perdrau, J. R.: The Histology of Postvaccinal Encephalitis, J. Path. & Bact. **31**: 17 (Jan.) 1928.
2. Bailly, U.: Paralysis Following Acute Diseases, Paris thesis, 1872.
3. Goss, F. W.: Case of Paralysis Occurring During Varioloid, Boston M. & S. J. **88**: 464, 1873.

Committee on Foods

REPORTS OF THE COMMITTEE

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

VB (VISSCHER BROTHERS) JUNIOR BRAND STRAINED APPLE SAUCE FOR CHILDREN
(Sweetened with sugar)

Manufacturer.—Lyndonville Canning Company, Lyndonville, N. Y.

Description.—Canned, cooked, strained apple sauce prepared from peeled and cored apples with added sucrose; retains in high degree the original vitamin values of the apples used.

Manufacture.—The manufacture is the same as that described for VB Old Fashioned Apple Sauce (THE JOURNAL, Aug. 6, 1932, p. 476) with the exception that the pulped, cooked hot apple sauce is strained through a "finishing machine" in an atmosphere of water vapor. The straining operation consumes only a moment of time. The sauce is canned and processed for five minutes. The entire process from the peeling of the apples to the filling of the cans takes approximately eight minutes.

Analysis and Calories.—See these sections for VB Old Fashioned Apple Sauce.

Vitamins.—The comminution of the apple sauce while still hot in the presence of moisture vapor and the short time consumed make the preparation of this product apparently as efficient as any available for the retention of the natural vitamin values.

Claims of Manufacturer.—Especially prepared for infant and invalid feeding.

MILLET'S WHOLE WHEAT BREAD
(Contains Whole Wheat, Potato and Rice Bran)

Manufacturer.—Millet System of Baking, Dallas, Texas.

Description.—A wheat bread made by the sponge dough method (method described in THE JOURNAL, March 5, 1932, p. 817); prepared from whole wheat flour, whole boiled potatoes, water, potato ferment, sugar, rice bran, salt, vegetable compound and compressed yeast.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	34.2
Ash	2.7
Fat	3.6
Protein (N × 6.25)	9.9
Crude fiber	1.2
Carbohydrates other than crude fiber (by difference)	48.4

Calories.—2.7 per gram; 77 per ounce.

Claims of Manufacturer.—Baked one hour.

HURFF BRAND TOMATO JUICE
(Made from Whole Red Ripe New Jersey Tomatoes)

Manufacturer.—Edgar F. Hurff, Swedesboro, N. J.

Description.—Canned pasteurized tomato juice with added salt; retains in high degree the vitamin content of the raw juice.

Manufacture.—Field ripened tomatoes from growers in the surrounding territory are inspected for firmness, color, texture and freedom from mold or soft spots. Tomatoes cracked at the stem are excluded. Suitable tomatoes are washed by agitation in flowing water; they are inspected on belts and undesirable fruit is discarded; the ends and cores are automatically trimmed off and the trimmed and cored tomatoes are spray washed. The juice is expressed by a revolving spiral within a stationary screen; the grooves of the spiral are deep at the receiving end and shallow at the discharge end, which arrangement causes a gentle pressing of the tomato pulp against the screen at the receiving end and a firm pressing at the discharge end. The juice passes through the screen, is brought to a temperature of from 85 to 87 C. in steam jacketed kettles and a small quantity of salt is added. The heating causes entrained air to rise to the surface, producing a froth, which is discarded. The hot juice is automatically filled into enamel lined cans, which are sealed, processed by immersion in water at 90 C. for five minutes and immediately cooled. The usual time period from the cleaning of the tomatoes to the final packing is from fourteen to sixteen minutes.

Analysis (submitted by manufacturer).—

	per cent
Moisture	92.4
Ash	1.2
Sodium chloride (NaCl)	0.6
Fat (ether extract)	0.7
Protein (N × 6.25)	0.8
Crude fiber	0.2
Carbohydrates other than crude fiber (by difference)	4.7

Calories.—0.3 per gram; 9 per ounce.

Vitamins.—The method of preparation in its details is considered efficient for retaining in high degree the natural vitamin values.

Claims of Manufacturer.—This tomato juice is a good source of vitamins A and B and an excellent source of vitamin C; for infant feeding and general table use.

FRANK'S DIATADE

Manufacturer.—Frank's Foodless Foods Company, Peekskill, N. Y.

Description.—Contains white mineral oil (liquid petrolatum, U. S. P.), whole eggs, malt vinegar, salt, mustard flour, white pepper and saccharin; contains no starch and no sugar or fat other than that natural to the ingredients.

Manufacture.—The formula proportions of whole eggs and spice are beaten in electric beaters; the mineral oil is added slowly with beating until a satisfactory emulsion is formed. The malt vinegar, salt and saccharin are beaten in. The resultant emulsion is bottled.

Analysis (submitted by manufacturer).—

	per cent
Moisture (moisture and volatile matter)	13.0
Total ash	1.5
Salt (NaCl)	1.4
Fat and mineral oil (ether extract)	83.5
Protein (N × 6.25)	1.1
Reducing sugars before inversion as invert (less than)	0.05
Reducing sugars after inversion as invert (less than)	0.05
Sucrose	0.0
Saccharin	0.012
Undetermined	0.5
Titratable acidity as acetic acid	0.4
Lipoid phosphoric acid (P_2O_5)	0.03
Unsaponifiable matter of separated oil	99.0
Iodine number of separated oil (Wijs, 1 hr.)	1.0
Saponification number of separated oil	2.6
Starch test	negative

Calories.—0.1 per gram; 3 per ounce.

Claims of Manufacturer.—Intended for use in place of the usual salad dressing for table use and for reducing diets. The mineral oil serves as an "internal lubricant" to promote normal bowel function.

FISHER'S WHOLE WHEAT FLOUR
(Extra Fine Granulation)

Manufacturer.—The Fisher Flouring Mills Company, Seattle.

Description.—Fine whole wheat flour milled from a blend of hard red wheats of Montana, Washington and Idaho.

Manufacture.—Whole wheat is cleaned, washed, scoured and milled as in preparation of flour. At the end of the process the flour and feed fractions are run together and blended in the same proportions as in the original wheat.

Analysis (submitted by manufacturer).—

	per cent
Moisture	11.2
Ash	1.6
Fat (ether extraction method)	2.2
Protein (N × 5.7)	14.2
Crude fiber	2.2
Carbohydrates other than crude fiber (by difference)	68.6

Calories.—3.5 per gram; 99 per ounce.

Claims of Manufacturer.—A whole wheat flour conforming to the United States Department of Agriculture definition and standard.

1. TWO STAR DURUM SEMOLINA
2. SUPERIOR NO. 1 PURE DURUM SEMOLINA
3. BIG DIAMOND EXTRA FANCY NO. 1 SEMOLINA
4. FANCY NO. 1 SEMOLINA
5. FANCY NO. 1 SEMOLINA

Manufacturer.—
1. Minneapolis Milling Company.
2. Commander Milling Company.
3. Big Diamond Mills Company.
4. Empire Milling Company.
5. Northland Milling Company.

Subsidiaries of the Commander-Larabee Corporation, Minneapolis.

Description.—Purified wheat middlings or endosperm milled from durum wheat.

Manufacture.—Selected amber durum wheat is cleaned, washed, tempered and milled by essentially the same procedure as described in THE JOURNAL, June 18, 1932, page 2210. The flour middlings is separated out from the bran, germ and flour and packed in bags.

Analysis.—(submitted by manufacturer).—

	per cent
Moisture	13.0 –14.5
Ash	0.56– 0.61
Fat (ether extraction method)	0.8 – 1.5
Protein (N × 5.7)	12.7 –13.5
Crude fiber	0.2 – 0.4
Carbohydrates other than crude fiber (by difference)	72.8 –69.5

Calories.—3.5 per gram; 99 per ounce.

Claims of Manufacturer.—For the manufacture of alimentary pastes.

EVAN'S E Z BAKE WHITE CORN MEAL
(Degerminated and Debranned)
EVAN'S E Z BAKE YELLOW CORN MEAL
(Degerminated and Debranned)

Manufacturer.—Acme-Evans Company, Indianapolis.

Description.—Corn meal practically free from corn germ and bran.

Manufacture.—White or yellow corn is cleaned by the usual grain cleaning machinery to remove foreign material, is tempered with live steam, degerminated by special machines that remove the germ and knock off the pointed end of the kernels, partially dried, and cracked between grinding rolls. The cracked corn is screened, loose bran is removed by air currents, and the corn "grits" are reduced between steel rolls. The material of desired granulation is separated out by sifters and automatically packed in sacks.

Analysis (submitted by manufacturer)—

	per cent
Moisture	12.0
Ash	1.5
Fat (ether extraction method)	0.9
Protein (N × 6.25)	8.5
Crude fiber	0.8
Carbohydrates other than crude fiber (by difference)	76.3

Calories.—3.5 per gram; 99 per ounce.

WARD'S BANNER WHOLE WHEAT BREAD
(Sliced) (100 Per Cent Whole Wheat)

Manufacturer.—The Ward Baking Company, New York City.

Description.—A whole wheat bread made by the straight dough method (method described in THE JOURNAL, March 12, 1932, p. 889); prepared from whole wheat flour, water, sucrose, compressed yeast, salt, shortening and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	38.0
Ash	2.2
Fat	2.3
Protein (N × 6.25)	10.2
Crude fiber	2.0
Carbohydrates other than crude fiber (by difference)	45.3

Calories.—2.4 per gram; 68 per ounce.

Claims of Manufacturer.—Conforms to the United States Department of Agriculture definition and standard for whole wheat bread.

FISHER'S COARSE GRAHAM FLOUR

Manufacturer.—The Fisher Flouring Mills Company, Seattle.

Description.—Coarse whole wheat flour milled from a blend of red and white Montana, Washington and Idaho wheats.

Manufacture.—Wheat is cleaned, washed, scoured and milled as in preparation of flour. At the end of the process the flour and feed fractions are run together and blended in the same proportions as in the original wheat.

Analysis (submitted by manufacturer).—

	per cent
Moisture	11.1
Ash	1.6
Fat (ether extraction method)	2.0
Protein (N × 5.7)	12.6
Crude fiber	2.7
Carbohydrates other than crude fiber (by difference)	70.0

Calories.—3.5 per gram; 99 per ounce.

Claims of Manufacturer.—A graham flour conforming to the United States Department of Agriculture definition and standard.

FISHER'S WHITE CORN MEAL
(Germ and Bran Removed)

Manufacturer.—The Fisher Flouring Mills Company, Seattle.

Description.—Finely granular white corn meal practically free from corn germ and bran.

Manufacture.—White corn is cleaned of foreign seed and materials, is scoured and polished, broken between steel rolls and passed through purifiers and aspirators; the ground material of a definite granulation and practically free of germ and bran is heat processed to destroy any insect infestation and packed in bags.

Analysis (submitted by manufacturer).—

	per cent
Moisture	11.5
Ash	0.9
Fat (ether extraction method)	2.0
Protein (N × 6.25)	10.6
Crude fiber	0.8
Carbohydrates other than crude fiber (by difference)	74.2

Calories.—3.6 per gram; 102 per ounce.

SUNBEAM PURE FOOD TOMATO JUICE
(Slightly Salted)

Packer.—Tugwell and Wiseman, Inc., Modeltown, Niagara, N. Y.

Distributor.—Austin, Nichols and Company, Inc., New York City.

Description.—Pasteurized tomato juice with a small amount of added salt; retains in high degree the vitamin content of the raw juice. The same as Blue Bar Brand Tomato Juice (THE JOURNAL, March 11, 1933, p. 740).

LUCKY BRAND BREAKFAST FOOD
(Farina with Some Fine Bran)

Manufacturer.—Federal Mill, Inc., Lockport, N. Y.

Description.—A spring wheat "middling" or farina containing some fine wheat bran.

Manufacture.—Spring wheat "middlings" produced in the regular milling of flour is automatically packed in bags.

Analysis (submitted by manufacturer).—

	per cent
Moisture	14.0
Ash	0.71
Fat (ether extraction method)	1.3
Protein (N × 5.7)	11.3
Crude fiber	0.7
Carbohydrates other than crude fiber (by difference)	72.0

Calories.—3.4 per gram; 97 per ounce.

Claims of Manufacturer.—This farina is intended for a breakfast cereal or other table uses.

AMERT UNSWEETENED EVAPORATED MILK

Distributor.—The Great American Tea Company, New York.

Packer.—The White House Milk Company, Inc., Manitowoc, Wis.

Description.—This canned unsweetened evaporated milk is the same product as White House Brand Evaporated Milk (THE JOURNAL, Nov. 19, 1932, p. 1780).

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MARCH 18, 1933

DEATHS OF PHYSICIANS PUBLISHED IN 1932

During 1932, the deaths of 3,142 physicians of the United States were recorded in THE JOURNAL, as compared with 2,952 in 1931 and 2,943 in 1930. The total number published was 3,247, which includes 105 Canadians. The list includes 2 who died in Hawaii, 1 in Alaska, 3 in France, 2 each in China, Africa and Germany, and 1 each in Persia, Siam, Mexico and Egypt. The obituaries of 87 women physicians were published in 1932, as compared with 84 in 1931. The graduates of medical schools in the United States for the fiscal year ended June 30, 1932, numbered 4,936. Deducting the number of physicians whose obituaries were published, there was a net addition to the ranks of the profession for the year of 1,794, which, figured thus, is an increase of 11 over 1931.

Ages.—The average age at death of those classified as of the United States was 64.1, as compared with 63.8 for 1931. Two physicians lived to be 100 years old, and 55 others lived to be 90 or more. One was 22. Twenty-seven physicians died between the ages of 25 and 29, 44 between 30 and 34, 55 between 35 and 39, 114 between 40 and 44, 173 between 45 and 49, 248 between 50 and 54, 420 between 55 and 59, 478 between 60 and 64, 454 between 65 and 69, 419 between 70 and 74, 343 between 75 and 79, 206 between 80 and 84, and 101 between 85 and 89. January was the month of most deaths, with 282.

Accidental Deaths.—One hundred and fifty-eight physicians died as the result of accidents in 1932, compared with 139 in the previous year. Automobile accidents accounted for 77 deaths, 6 more than in 1931. In 1932, deaths from falls numbered 19, the second largest number due to accidental causes. Twelve deaths were caused by drowning, 10 each by overdoses of medicine and gunshot wounds, 6 each by carbon monoxide gas, 4 each by skull fractures and burns, 3 each by airplane accidents and poisoning, and 2 each by x-ray machines, explosions and leg fractures. One was killed by a falling business sign, and remaining deaths were caused by illuminating gas and suffocation by smoke. In some cases the nature of the accident was not specified.

Suicides and Homicides.—Eighty-seven physicians committed suicide in 1932, 23 more than in 1931. Shooting accounted for 36 deaths; poison for 23; incised wounds, 9; hanging and gas, 5 each; drugs, 3; jumping, 2; chloroform and stabbing, 1 each, and in the remaining cases the method was not reported. There were 8 homicides by shooting; 1 victim was beaten.

Causes.—Heart disease was again the leading cause of death with 1,101 deaths, compared with 1,065 for 1931. Some contributory causes are included in the tabulation, as they have been in former years. A report that the cause of death was "chronic nephritis and heart disease," for example, is so published in THE JOURNAL and is reported on the statistical charts under both diseases. Of the deaths from heart disease, endocarditis or myocarditis was specified in 332, angina pectoris in 127, and pericarditis in 2. Cerebral hemorrhage was the second most frequent cause reported, with 346 deaths; 17 additional deaths were reported as due to paralysis. Pneumonia was the third most frequent cause; lobar pneumonia was reported in 225 cases and bronchopneumonia in 59. Fourth on the list was arteriosclerosis, with 259; other diseases of the arteries caused 3 deaths. Nephritis caused 208 deaths, of which 17 were specified as acute nephritis. Of 228 deaths caused by cancer, the stomach and liver were affected in 55 cases, the intestine in 27, the prostate gland in 25, the buccal cavity in 4, the female genital organs in 1, and in 118 the part affected was not specified. Embolism and thrombosis caused 162 deaths; uremia, 81; diabetes, 70; tuberculosis, 68, and other diseases of the respiratory system, 8; diseases of the prostate, 47, and other diseases of the genito-urinary system, 29; influenza, 45; septicemia, 43; senility, 42; hypertension, 37; appendicitis, 35; cirrhosis of the liver, 31, and other diseases of the liver, 8; peritonitis, 24; ulcers of the stomach, 24, and other diseases of the stomach, 7; intestinal obstruction, 23, and other diseases of the digestive system, 30. Other diseases, each of which caused some deaths, were: asthma and cholecystitis, 19; pulmonary edema and gangrene, 17; pernicious anemia, 14; abscesses, 12; chronic bronchitis, 12; meningitis, 12, and other diseases of the spinal cord, 1; chronic rheumatism and biliary calculi, 11; brain tumor, 10; paralysis agitans and encephalitis, 9; sarcoma, 8; typhoid, 7; shock, 6; leukemia, hernia and diseases of the bones and organs of locomotion, 5; aneurysm, diseases of the veins, pleurisy, progressive muscular atrophy, secondary anemia and pancreatitis, 4; syphilis, diseases of the organs of hearing, diverticulitis, mastoiditis, carbuncle, agranulocytic angina, septic sore throat, Hodgkin's disease, encephalomalacia, erysipelas and empyema, 3; typhus

fever, aplastic anemia, alcoholism, dementia paralytica, agranulocytosis, multiple sclerosis, sinusitis, edema, Mikulicz's disease, septic cellulitis, paralytic ileus, anemia, lymphosarcoma and intracranial hemorrhage, 2 each. Among other unusual causes of death given for 1 case each were Addison's disease, eclampsia, myasthenia gravis, ruptured esophageal varix, splenic anemia, yellow fever, pancreatic cyst, sprue, and transverse myelitis following the bite of a monkey.

Positions.—Among the decedents were 149 who were or had been teachers in medical schools, 264 who served in the World War, 49 veterans of the Civil War and 40 veterans of the Spanish-American War. Eighty-nine had been health officers, 86 members of boards of education and 65 members of boards of health. There were 46 coroners, 46 mayors of municipalities, 24 members of the state legislatures, 12 members of state boards of medical examiners, 17 members of the U. S. Army Medical Corps and 10 of the U. S. Navy Medical Corps. Twenty authors, 14 bank presidents, 13 druggists, 9 postmasters, 8 missionaries, 8 members of city councils, 5 dentists, 5 editors, 2 lawyers, 4 police surgeons, 1 clergyman and 1 judge were included.

Association Officers.—The obituaries published in 1932 of physicians who were or had been officers of the American Medical Association included 3 presidents, 1 vice president, 2 trustees, 1 treasurer, 11 section officers and 2 members of councils. Fifteen members of the House of Delegates, including a vice speaker, died during the year. Thirty-two presidents of state societies and 2 state secretaries were included among the officials.

CARBON MONOXIDE IN EVERYDAY LIFE

The changes in living conditions brought about by modern inventions have not always been unmixed advantages. Amid the improvements that contribute to comfort and satisfaction are occasional incidental factors that are not so welcome. Advancing civilization has not been entirely freed from menaces to human welfare; in fact, it has sometimes been directly responsible for the attendant development of new physiologic hazards. A formidable illustration is the increasing danger represented by the colorless and almost odorless gas carbon monoxide, CO. As has often been pointed out,[1] carbon monoxide, except for one reaction, is a physiologically inert gas; it combines with the hemoglobin of the blood to the exclusion of oxygen. Were it not for this one reaction, carbon monoxide would be classed with nitrogen and hydrogen as a simple asphyxiant. Animals that have no hemoglobin are quite normal in 80 per cent carbon monoxide and 20 per cent oxygen. The toxic action of carbon monoxide, therefore, is exercised through the anoxemia resulting from the conversion of oxyhemoglobin to carbon monoxide hemoglobin, and the resulting asphyxia.

The facts about the distribution of carbon monoxide should be quite familiar by this time. According to Henderson and Haggard,[1] only in rare conditions does carbon monoxide appear in nature; it is, however, almost universally present wherever man lives and works. It usually originates from the incomplete combustion of carbonaceous material. Illuminating gas is one of the commonest sources of acute poisoning; many of these cases are suicidal. Coal gas, which is made by the destructive distillation of coal, contains from 4 to 6 per cent of carbon monoxide. Water gas, which is made by passing steam over heated coke, contains about 40 per cent of carbon monoxide. In England and the European continent, coal gas is chiefly used for illuminating gas. In American cities a mixture is usually supplied consisting largely of water gas enriched with either some coal gas or petroleum products to afford luminosity and raise the thermal value. Illuminating gas in the United States contains from 6 to 30 per cent or even more of carbon monoxide; generally it is between 20 and 30 per cent.

The "after damp" of coal mine explosions represents a long known modern hazard in which carbon monoxide is primarily involved. More recent is the potential danger of the automobile. The exhaust gas from internal combustion engines, Henderson and Haggard estimate, contains carbon monoxide in proportions ranging from a fraction of 1 per cent to 7 per cent or even higher. The variation depends on the proportion of air and gasoline in the mixture burned; the carbon monoxide increases with increase in the proportion of gasoline, that is, with a rich mixture. A rough estimate of the volume of carbon monoxide that an automobile may produce is 1 cubic foot (28 liters) per minute for each 20 horse power. This is sufficient to render the atmosphere of a single car garage deadly within five minutes, if the engine is run while the garage doors are closed. As has been explained, a man breathing such an atmosphere often falls helpless before he realizes that he is affected; hence many fatalities. In streets where traffic is congested, the content of carbon monoxide rises to about 100 parts per million of air, enough to cause slight headache after long exposure.

In a recent issue of THE JOURNAL, Gettler and Mattice[2] of Bellevue Hospital, New York, remarked that the ideal normal individual should have no carbon monoxide in his blood but that the average person under ordinary conditions is exposed so frequently to it that it is not possible to regard him as being carbon monoxide free unless procedures are employed which are suitable only for the detection of amounts known to be toxic. An effort was therefore made to ascertain what constitutes the "normal" content of carbon monoxide in human blood. In this instance, "normal" obviously refers to the level enforced by the environment of present-day life in various parts of the country.

1. Henderson, Yandell, and Haggard, H. W.: Noxious Gases, New York, Chemical Catalog Company, 1927. Several of the statements above are taken from this excellent review.

2. Gettler, A. O., and Mattice, Marjorie R.: The "Normal" Carbon Monoxide Content of the Blood, J. A. M. A. **100**:92 (Jan. 14) 1933.

A formerly unappreciated contributory factor lies in the components of tobacco smoke, which few persons escape, either because of their own use of smoking tobacco or of their proximity to smokers. Some investigators have regarded the absorption of carbon monoxide from tobacco smoke as negligible, despite the fact that considerable quantities of the objectionable gas are undoubtedly drawn into the mouths of smokers.

In the observations of Gettler and Mattice, the average content of carbon monoxide in the blood of eighteen persons living in New York City under conditions of minimal exposure was found to be 0.27 volumes per cent. This represents about 1 to 1.5 per cent of the hemoglobin combined with carbon monoxide. The average content of carbon monoxide in the blood of twelve persons confined to a state institution in an ideal rural locality was found to be 0.24 volumes per cent. Most of these showed a hemoglobin saturation of less than 1 per cent. The average content of carbon monoxide in the blood of twelve New York street cleaners was found to be 0.69 volumes per cent. This represents about 3 per cent saturation of the hemoglobin with carbon monoxide. The New York biochemists believe that smoking is apt to be the most conspicuous factor in determining the carboxyhemoglobin of an individual under normal conditions when he is not exposed to obvious high percentages of carbon monoxide. The quantities reported for the blood are far smaller than those which give rise to appreciable physiologic effects. Malaise may occur when one fifth of the circulating respiratory pigment is in combination with carbon monoxide. A knowledge of the facts should serve, however, to put us on our guard against an avertible potential modern menace to well being.

Current Comment

MEDICINAL LIQUOR BILL DIES WITH EXPIRING CONGRESS

The Celler-Copeland bill, initiated by the American Medical Association, to establish a rational system of regulating the medicinal use of alcohol, to replace the arbitrary, ill considered system now in force, died with the expiration of the Seventy-Second Congress. The bill, which would have saved the government $110,000 a year, had the support of the Treasury Department. It had the approval of the Commissioner of Industrial Alcohol and the Director of Prohibition. It was designed to carry out the unanimous recommendation of the Wickersham Commission. It was unopposed by any organized body of prohibitionists. It had passed the House of Representatives, the Senate Committee on the Judiciary had recommended its enactment, and the bill was on the Senate calendar. When a motion was made to take it up for consideration, however, Senator Brookhart of Iowa threatened to filibuster against it during the remaining hours of the session, which marked the remaining hours of his official life, for his constituents had already retired him to private life at the expiration of the Seventy-Second Congress, March 4. As a filibuster would prevent the Senate from considering not only this bill but any other legislation during the short time remaining to it, the motion to consider the bill was wisely withdrawn. Representative Emanuel Celler of Brooklyn, who introduced this bill in the House of Representatives, worked untiringly to procure its enactment in a form satisfactory to the medical profession. Too much cannot be said in appreciation of his efforts. In the Senate, Senator Royal S. Copeland of New York introduced the bill and stood sponsor for it, and did what he could to procure its passage, but, under the rules of the Senate, against the threatened filibuster he and all his fellow senators were powerless. The bill did not become a law, but the thanks of the medical profession are due Senator Copeland and Representative Celler for what they did in support of the measure.

MENCKEN AND MEDICAL CARE

In the *American Mercury* for March, Mr. H. L. Mencken, who comments pungently on most of the world's affairs, makes public his analysis of the final report of the Committee on the Costs of Medical Care. A considerable number of physicians have written to THE JOURNAL requesting that special attention be called to this analysis. Mr. Mencken first expresses concretely the major conclusions of the majority report; namely, that the right way to relieve people of the burden of medical care is to throw that burden on the taxpayers and to convert the doctors into public functionaries. He realizes that the increased cost of medical care has not meant increased income for the physician but that most of the money "has gone to the hospitals, and they have got it, not in the character of institutions for the care and cure of the sick, but in the character of luxurious hotels for the entertainment and flattery of the sick." He emphasizes also the desire to keep up with the Joneses as a part of the reason for the financial disaster associated with hospital bills and particularly in the field of obstetrics. As has been pointed out in these columns, a substantial part of the increased cost of medical service is due to new technics in medical science. On this point Mr. Mencken says:

> Not a few of them call for expensive apparatus, and all of them call for kinds of skill that cannot be had for nothing. It is obviously far more costly to make a series of x-ray plates and cardiograms of the heart than it used to be to do the whole job with a stethoscope, or even with the naked ear, as was the custom when I was young. A Wassermann may not cost as much as a permanent wave, but it at least costs more than no Wassermann. And it is plainly more expensive to cut out a gangrenous appendix and nurse the patient back to health than it used to be to give him a dose of Glauber's salts and send for a clergyman.

Mr. Mencken realizes that the problem of the costs of medical care is merely a part of the difficult economic situation in which we find ourselves generally. He calls on physicians to oppose vigorously the attempts that are being made to socialize their profession and he stresses particularly the necessity for restoring the family doctor to the central place in medical practice.

He is not convinced that the formation of groups around hospitals will tend toward this end. "The way to restore his old importance," he says, "is to restore his old functions, and that is certainly not going to be done by transferring even more of his patients to hospitals." While he ends with a tribute to the profession, he also realizes the tendency toward the exploitation of the physician by uplifters in general:

I confess that it always irritates me to hear medical men denounced as prehensile, as is often done, not only by quacks, but also by persons who should know better. They are actually, with very few exceptions, fellows of a vast and innocent sentimentality. The great majority, indeed, might be described with perfect accuracy as easy marks. The men of no other profession are so facilely operated on by specialists in other people's duties. They walk into the arms of every new uplifter who happens down the road. My hope is that the report of the Committee on the Costs of Medical Care, with its bald proposals to reduce them to a kind of peonage, will at last awaken them to the fact that they also owe some duties to themselves, and that, with everything else equal, the more they regard those duties the better they will be able to serve their actual patients.

Association News

THE MILWAUKEE SESSION

Local Committee on Arrangements

The Local Committee on Arrangements and its various subcommittees under the direction of Dr. Stanley J. Seeger are actively engaged in perfecting arrangements for the Milwaukee Session. All subcommittees have been appointed and confirmed by the board of directors of the Medical Society of Milwaukee County. Very complete plans have been made for entertainment and for the comfort and convenience of those who attend the session. Dr. Harry J. Heeb, chairman of the Subcommittee on Hotels, reports that the number of reservations already made indicates a large attendance. In order to prevent confusion and to insure good accommodations, hotel reservations should be made at the earliest possible time.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Tuesday and Thursday from 9:15 to 9:20 a. m. (central standard time) over Station WBBM (770 kilocycles, or 389.4 meters). The subjects for the week are as follows:

March 20. Kidney Stones.
March 22. Women Workers and Occupational Diseases.

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 9:45 to 10 o'clock over Station WBBM.

The subject for the week is as follows:

March 25. Tuberculosis—History and Prevention.

Adrenal Ablation and Renal Insufficiency.—Our more recent work on dogs demonstrates that renal insufficiency is a constant finding after adrenal ablation, and that complete restoration of kidney function follows administration of the cortical hormone, with outpouring of urinary nitrogen, chlorides, phosphates and other waste metabolites. Significant anatomical lesions have not been demonstrated in the kidneys of animals dying from adrenal insufficiency so it is evident that the renal lesion, if such is present, is a functional one and occurs in the absence of demonstrable anatomical injury.—Swingle, W. A., and Pfiffner, J. J.: The Adrenal Cortical Hormone, *Medicine* **9**:410 (Dec.) 1932.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Personal.—Dr. Hugh C. McRee, for years head of the Morgan County health unit, has been appointed health officer of Lee County, with headquarters at Opelika.——Dr. John McLaughlin Forney, Tuscaloosa, addressed an open meeting at the University of Alabama School of Medicine, University, January 27, on "The Future of a Medical Career."

ARIZONA

Bill Introduced.—H. 227 proposes to authorize the state board of health to license persons to practice midwifery. Such licentiates may practice only in cases of normal delivery. They are to be forbidden to make vaginal examinations, to use instruments to aid delivery, to assist labor by any artificial, forcible mechanical means or to administer or prescribe dangerous or poisonous drugs.

CALIFORNIA

Dr. Drummond to Give Lane Lectures.—Dr. John C. Drummond, professor of biochemistry, University College, London, will deliver the twenty-fourth course of Lane Medical Lectures in Lane Hall, Stanford University School of Medicine, April 3-7, on "Recent Advances in the Biochemical Study of Nutritional Disorders." Titles of the individual lectures are "Chief Nutritional Disorders of Today: How They Have Arisen; Changed Food Habits"; "Protein Factors in Nutrition Pellagra"; "Fats in Diet and Accessories Accompanying Fats"; "Fat Soluble Vitamins," and "Water Soluble Vitamins." Professor Drummond will also give a lecture, April 11, at the university on "General Survey Lines of Future Progress."

Medical History Seminars.—The California Medical History Seminar luncheon in honor of George Sarton, Sc.D., associate of the Carnegie Institution of Washington, D. C., was held in San Francisco, January 21. Dr. Sarton spoke on "The Slowness of Human Progress." There was also an exhibit commemorating the centennial of the publication of William Beaumont's "Experiments and Observations on the Gastric Juice and the Physiology of Digestion," in Plattsburg, N. Y., in 1833. At a similar luncheon in December, in honor of Dr. and Mrs. Charles Singer, London, England, Drs. Sanford V. Larkey spoke on "Berengario da Carpi" and Emmett L. Rixford, "Traditions of Chinese Medicine." An exhibit in observance of the tercentenary of the birth of Antonj von Leeuwenhoek was displayed.

COLORADO

Bill Introduced.—H. 189 proposes to create a board of chiropractic examiners and to regulate the practice of chiropractic. Chiropractic is defined as the science of locating and removing interference with nerve transmission. Licentiates are to be permitted to practice chiropractic, to use such sanitary and hygienic measures as are necessary to such practice, and to use the title of "Doctor" or "Dr." if the word "Chiropractor" or the letters "D.C." follow their names; but they are not to be permitted to practice surgery or obstetrics, or to prescribe or administer drugs or anesthetics. Under certain conditions such licentiates may be permitted to practice electrotherapeutics.

Society News.—Dr. Archibald J. Chisholm, Denver, recently addressed the Colorado Society of Clinical Pathologists on "Relation of Pulmonary Tuberculosis to Anorectal Fistula: Clinical, Pathological and Bacteriological Studies."——At a meeting of the Crowley County Medical Society in Ordway, January 10, Dr. George B. M. Baker, Rocky Ford, spoke on "Failing Heart in the Aged" and "Uses and Abuses of Digitalis," and Dr. Earnest O. McCleary, "Necessity and Methods of Relieving the Suffering." Speakers before the society, February 12, included Drs. James E. Jeffery and William M. Desmond on "Reminiscences of Past Medical Practice" and "Postinfluenzal Infections," respectively.——Speakers before the Medical Society of the City and County of Denver, February 7, were Drs. Clarence B. Ingraham, Jr., on "Lipiodol Injections to Determine Patency of the Fallopian Tubes"; Edward L. Harvey, "Cesarean Section"; James Rudolph Jaeger, "Treat-

ment of Brain Injury in the New-Born"; Herman G. Maul, "Physiology of Blood Transfusion," and Elbert B. Swerdfeger, "Esophageal Ulcer." —— Medical economics was discussed at the March 8 meeting of the Boulder County Medical Society, Boulder, by Drs. John Andrew, Longmont, Oscar M. Gilbert and Frank R. Spencer, Boulder.

DELAWARE

Bill Introduced.—H. 353 proposes a new medical practice act. The medical council, which now consists of the chief justice of the state and the presidents of the medical society and the homeopathic medical society, is to consist of the chief justice, two members of the medical society, two members of the homeopathic society, and one member of the state osteopathic society. The separate examining boards for nonsectarian physicians and for homeopaths are abolished and a single examining board is substituted, to consist of three nonsectarian physicians, three homeopathic physicians, and one osteopath. By implication, osteopaths are to be permitted to practice obstetrics and surgery if the bill becomes a law.

GEORGIA

Bill Enacted. — S. 142, eliminating that portion of the medical practice act directing the board of medical examiners to elect a secretary-treasurer from its membership, so as to conform with the terms of an act approved Aug. 29, 1931, providing for a joint secretary of the several state examining boards, has been approved by the governor.

IDAHO

Bill Enacted.—S. 99, prohibiting the possession, sale or distribution of "anhalonium, otherwise known as peyote," has become a law.

ILLINOIS

Bill Introduced.—H. 433 proposes, in effect, that employees contracting any occupational disease in any employment be entitled to compensation.

Clinic for Treatment of Epidemic Encephalitis.—The establishment of a comprehensive clinic for the treatment of epidemic encephalitis at the Dixon State Hospital has been announced. Dr. Charles C. Rowley will be the resident physician in charge. A small group of children from 6 to 16 years of age will be given special attention. Dixon State Hospital is the only institution in the state where patients with post-encephalitis can be legally committed.

Chicago

General Practitioner's Night.—Rheumatism will be discussed in the program to be presented before the Chicago Medical Society, March 22, on "general practitioner's night." Dr. Benjamin J. Clawson, Minneapolis, will speak on "Etiology and Pathology of Acute Rheumatic Fever"; Dr. John S. Coulter, "Physical Therapy in Chronic Arthritis," and Dr. Emil G. Vrtiak, "Classifications and Etiology of Chronic Arthritis."

Society News.—Dr. Charles G. Mixter, Boston, will deliver the ninth Lewis Linn McArthur Lecture of the Frank Billings Foundation of the Institute of Medicine of Chicago, March 24, on "Meckel's Diverticulum and Its Surgical Significance." ——Officers of the Chicago Orthopedic Club for the ensuing year are Drs. Robert O. Ritter, president; Jacob K. Meyers, vice president, and Daniel H. Levinthal, secretary.——Dr. Oliver S. Ormsby has been elected president of the Chicago Dermatological Society; Dr. James H. Mitchell, vice president, and Dr. Max S. Wien, secretary. —— Dr. Frances R. Vanzant, Rochester, Minn., addressed the Chicago Council of Medical Women, March 3, among others, on "Interpretation of Gastric Analysis (Norms of Men and Women)."

Contagious Disease Division for Private Patients.—A division for the treatment of private patients with contagious diseases has been opened at the Albert Merritt Billings Hospital, University of Chicago Clinics. Ten private rooms in the Billings Hospital are now available for this service, the number to be increased should the demand warrant it. The division is the only one of its kind in the city since the recent closing of the Durand Hospital. While the Chicago municipal contagious disease hospital and the Cook County Hospital accept indigent patients with contagious diseases, the Durand Hospital, a part of the McCormick Institute for Infectious Diseases, had been the only hospital where private patients with contagious diseases could be isolated. Directors of the institute were forced to close the Durand Hospital because of reduction in income.

INDIANA

Bill Enacted.—H. 100, giving to all hospitals treating persons injured through the fault of other persons, liens on all rights of action, suits, claims, judgments, settlements or compromises which may accrue to the injured persons by reason of their injuries, has become a law.

Society News.—At a meeting of the Adams County Medical Society, January 13, in Decatur, Drs. Alois B. Graham and Joseph W. Ricketts, Indianapolis, spoke on rectal diseases.—— Medical economics was the subject discussed before the Clinton County Medical Society in Frankfort, January 5.——Dr. John R. Brayton, Indianapolis, addressed the Huntington County Medical Society, January 3, on the modern treatment of syphilis.——Dr. Murray N. Hadley, Indianapolis, addressed the Hendricks County Medical Society, January 20, on diseases of the gallbladder, hernia and appendicitis.——The Wayne-Union County Medical Society, Richmond, heard Dr. Frank M. Coppock, Jr., Cincinnati, January 19, in a discussion of extra-uterine pregnancy.——Dr. John H. Warvel, Indianapolis, addressed the Orange County Medical Society at West Baden, March 7, on "Treatment of Anemias."——Dr. Robert M. Moore, Indianapolis, addressed the Tippecanoe County Medical Society at Lafayette, March 9, on "Cardiac Patient as a Surgical Risk."——The program of the Indianapolis Medical Society, February 28, was arranged for the general practitioner; subjects discussed were obstetrics, anesthesia and urologic problems, with Drs. Ernest O. Asher, New Augusta, Fred A. Thomas and James F. Balch, Jr., Indianapolis, as speakers.——Dr. Harold Swanberg, Quincy, Ill., addressed the Henry County Medical Society, at Newcastle, March 9, on "Radium Therapy in General Practice."

IOWA

Bill Introduced.—H. 522 proposes that no form of vaccination or inoculation be made a condition precedent to admission to any public or private school or college or to the exercise of any right, the performance of any duty, or the enjoyment of any privilege.

Opposition to Majority Report.—That the demands of the constantly changing social structure cannot be met by adhering to the lines advocated in the majority report of the Committee on the Costs of Medical Care was the theme of a resolution unanimously adopted at a meeting of the Woodbury County Medical Society in Sioux City, February 23. The report was discussed by Drs. Oliver J. Fay, Joseph Brown and Robert L. Parker of Des Moines, and William Jepson, Wallace S. Petty and James E. Reeder of Sioux City. About 200 physicians, dentists, pharmacists and veterinarians from northwestern Iowa, northeastern Nebraska and southeastern South Dakota attended the meeting.

KENTUCKY

Personal. — Dr. George L. Thompson, Owensboro, has resigned as health director of Daviess County and Dr. Lawrence Hubert Medley was elected to succeed him. Dr. Thompson is now health officer of McLean County.

LOUISIANA

Personal.—Dr. Henry Dickson Bruns, emeritus professor of diseases of the eye, Tulane University of Louisiana School of Medicine, New Orleans, was honored recently when a bronze plaque was placed on the door of the diagnostic room for the eye department of the Eye, Ear, Nose and Throat Hospital. This room has been dedicated to Dr. Bruns in recognition of nearly fifty years' service in the hospital.

University News. — The Commonwealth Fund of New York recently granted $25,000 to Tulane University of Louisiana School of Medicine, New Orleans, to help in meeting the expenses of the Hutchinson Memorial Clinics for the year 1932-1933. Two of the clinics, those of medicine and surgery, were opened in October. With the aid of the grant, the work was expanded, the *Tulane News-Bulletin* states, and other clinical departments were put in operation as rapidly as possible. Dr. Herbert B. Rothschild has been appointed assistant in pediatrics in the school of medicine.

MAINE

Bill Enacted.—H. 217, to amend the law prohibiting the practice of vivisection in schools supported wholly or in part by public money by making a violation of the act punishable by a fine of from $10 to $25 and by striking out the provision in the law making it mandatory for the commissioner of education to revoke the certificate of any teacher violating the act, has become a law.

MICHIGAN

Physicians in the Legislature.—The following five physicians are serving in the fifty-seventh Michigan legislature:

James T. Upjohn, Kalamazoo, senate, graduated from the University of Michigan Medical School, Ann Arbor, 1886.

Henry E. Perry, Newberry, house of representatives, graduated from Michigan College of Medicine and Surgery, 1897, and the Northwestern University Medical School, Chicago, 1904.

Duncan A. Cameron, Alpena, house of representatives, graduated from McGill University Faculty of Medicine, Montreal, 1885.

John G. Rulison, Lansing, house of representatives, graduated from University of Michigan Medical School, Ann Arbor, 1903.

Edward F. Fisher, Dearborn, house of representatives, graduated from Detroit College of Medicine and Surgery, 1906.

Graduate Conference.—The Michigan State Medical Society and the department of postgraduate medicine of the University of Michigan, Ann Arbor, cooperated in a graduate conference in Saginaw, March 9. The program included talks by Drs. Frederick C. Warnshuis, Grand Rapids, on "Principles in Treatment of Fractures" and "Economic Problems Involving Medical Practice"; Richard M. McKean, Detroit, "Nephritis" and "Serology"; Robert C. Moehlig, Detroit, "Endocrinological Factors" and "Endocrinological Therapy." Nathan Sinai, Ph.D., Ann Arbor, discussed "Adequate Medical Care." The session was concluded with a round table discussion of "community interest and problems."

MINNESOTA

Bills Introduced.—S. 743 proposes to accord hospitals treating persons injured through the fault of other persons liens on all claims for damages, rights of action, judgments, settlements or compromises accruing to the injured persons by reason of their injuries. H. 1284 proposes to regulate the sale of bakery goods marketed as beneficial for diabetes. Such foods cannot contain gluten or whole wheat flours and must be labeled with a statement of the flour content and that each loaf contains not to exceed 15 per cent of carbohydrate content.

MISSOURI

Personal.—Dr. Joseph Mülzer of Heidelberg University, Germany, was guest of honor at a recent reception given by Dr. and Mrs. Carl Barck, in honor of his appointment to the department of ophthalmology at St. Louis University School of Medicine, St. Louis. Dr. Mülzer is the recipient of the Carl Barck Ophthalmology Fellowship, the funds for which were provided by a group of Dr. Barck's friends on the golden anniversary of his graduation from the University of Freiburg, Baden, Germany, celebrated last year.

Graduate Course in Obstetrics.—The Kansas City General Hospital began a five day graduate course in obstetrics and gynecology, February 20, consisting of six one hour classes daily, with operative clinics within the hospital. The second day of the course was a joint meeting with the monthly hospital clinic of the Kansas City Southwest Clinical Society. Dr. Wendell M. Long, Oklahoma City, as the guest speaker addressed this session on "Pelvic Infections." Local physicians conducted the course. If the demand warrants, similar courses will be presented later.

Society News.—The speaker at a joint meeting of the Jackson County Medical Society and the Wyandotte County Medical Society, Kansas City, February 21, was Dr. Wendell M. Long, Oklahoma City, on "Cancer of the Uterus—Its Prevention and Early Diagnosis."——At a meeting of the St. Louis Medical Society, February 21, Dr. Frank J. Tainter spoke on "Homotransplant of Parathyroid Gland—Preliminary Report of Transplantation of Parathyroid for Tetany of Four and One-Half Years' Duration," and Col. George A. Skinner, Omaha, "Saneness in Maintaining Physical Efficiency." At a meeting of the society, February 14, Drs. George Gellhorn and Lee D. Cady discussed a "New Treatment for Trichomonas Vaginitis," and Charles H. Neilson, "Effect of Weather in Human Conduct and Particularly Its Effect in Disease."

NEBRASKA

Computation of Charity Work.—Omaha physicians and hospitals gave free services with an estimated value of $673,898 to the indigent in 1931, according to a report to the Omaha-Douglas County Medical Society by Dr. Earl C. Sage. The report contrasts this amount with $450,000 collected by the community chest from the whole city for charity. In tabulating his report, Dr. Sage arbitrarily chose a value of $50 for each surgical operation, $2 for consultations in outpatient departments, and $25 a week for medical services in the hospital. Taxpayers contributed for care of this group through funds for the city health department, county hospital and county physician, $253,414. In 1926, while he was secretary of the society, Dr. Sage made a similar compilation, which showed that charity work done by physicians amounted to $476,769, estimated on the same scale as that for 1931.

NEW JERSEY

Bills Introduced.—S. 226, to amend the laws relating to the practice of osteopathy, proposes, in effect, to permit osteopaths to practice medicine and surgery without restriction. A. 289 proposes to prohibit the sale or other distribution of barbital or any other hypnotic or somnifacient drug, except on the written prescription of a licensed physician, dentist or veterinarian. A. 317 proposes to authorize the sexual sterilization of certain socially inadequate inmates of state institutions. A. 327 proposes to create a board of naturopathy and to regulate the practice of naturopathy. Naturopathy is defined as that system of the healing art which uses and prescribes the use of the combined psychological, mechanical and material sciences of healing, as taught in legally incorporated schools, institutes and colleges of naturopathy, including psychotherapy, mechanotherapy, internal and external hydrotherapy, electrotherapy, pneumotherapy, neuropathy, physiotherapy, chromotherapy, corrective and orthopedic gymnastics, spondulotherapy, geotherapy, dietetics, biochemistry, phytotherapy.

NEW MEXICO

Bill Passed.—H. 347, to appropriate $215,000 to erect and equip a hospital for the treatment of the insane, at Las Vegas, has passed the house.

NEW YORK

Bills Introduced.—A. 1736, to amend the workmen's compensation act, proposes, in effect, to make compensable any and all disabling diseases and disabling illnesses contracted in the course of any employment covered by the act. A. 1737 proposes to create in each public welfare district a central bureau or division of hospital clinics, to promulgate regulations to govern applications for free medical, surgical and other treatment in clinics and in hospitals.

Personal.—Dr. Louis C. Kress has been appointed assistant director of the division of cancer control, State Institute for the Study of Malignant Disease, Buffalo. He has been attending physician at the institute since 1920.——Dr. George Herbert Ramsey, associate professor of epidemiology, Johns Hopkins School of Hygiene and Public Health, Baltimore, has been appointed director of the division of communicable diseases in the state department of health. Among other positions Dr. Ramsey has held is that of deputy commissioner of health with the Michigan state department of health. During his affiliation with Johns Hopkins, he spent sixteen months with the West African Yellow Fever Commission under the auspices of the International Health Division of the Rockefeller Foundation.——Dr. Harold Jackson Davis, epidemiologist of the state health department, has been appointed director of medical care for the Temporary Emergency Relief Association. He will represent the department in assisting departments of welfare in the provision of home medical care.——Dr. Allen W. Holmes, Watkins Glen, was recently elected president of the Central New York Roentgen Ray Society at a meeting in Syracuse.

New York City

Afternoon Lectures in Brooklyn.—The schedule of Friday afternoon lectures sponsored by the Medical Society of the County of Kings during March is as follows:

Dr. Charles H. Andrew, The General Practitioner and Eye Conditions.
Dr. Frank B. Cross, The Patient with Nephritis.
Dr. Joseph B. L'Episcopo, Disabling Feet.
Dr. Eli Jefferson Browder, Head Injuries.
Dr. Maximilian A. Goldzieher, Physiology and Pathology of the Pituitary Gland and Their Clinical Aspects.

Society News.—At a meeting of the Medical Society of the County of Kings, February 21, speakers were Drs. Charles Gordon Heyd, on "Problems of Medical Practice and the State Society," and Emil Koffler, "Compulsory Health Insurance Abroad" and Mr. Bailey B. Burritt, "Common Ground in the Next Steps for the Medical Profession and the Profession of Social Work."——At a meeting of the committee on cardiac clinics of the New York Tuberculosis and Health Association, February 28, Drs. Eugene M. Landis, Philadelphia, and John Murray Steele presented papers on "The Movement of Blood Through the Capillary Walls" and "Fever of Unexplained Origin in Heart Failure," respectively.——The twelfth afternoon lecture of the New York Academy of Medicine was presented, February 10, by Dr. Albert A. Epstein, on "Medical and Surgical Complica-

tions in the Diabetic: Their Diagnosis and Treatment." Dr. William Charles White, Washington, D. C., delivered the sixteenth lecture, March 10, on developments in the study of tuberculosis.

NORTH CAROLINA

Bills Introduced.—S. 215, to amend the workmen's compensation act, proposes to make the employer liable for such medical, surgical, hospital and other treatment as may be reasonably required by an injured employee for a period not exceeding thirty weeks from the date of the injury. An injured employee is to have the right to select not to exceed two physicians of his choice, who are to be paid by the employer or by the industrial commission the same fees as are fixed by the medical society in the town or county where the physicians reside. H. 765 proposes to require persons employed as nurses, maids, house-workers or cooks to be examined annually by licensed physicians to ascertain whether they are free from venereal disease or from tuberculosis. The bill, however, is to apply only to cities and towns of 1,000 population or more.

OHIO

Personal.—Dr. Charles A. Neal, Cincinnati, former state health officer, was elected president of the Ohio Public Health Association recently. —— Dr. Gilbert F. Thompson has been appointed surgeon to the Ohio Soldiers' and Sailors' Home Hospital, State Soldiers' Home, to succeed the late Dr. John T. Haynes.——Physicians of Shelby and Mansfield gave a dinner in honor of Dr. Matthew T. Love, Shelby, February 2, in recognition of his completion of fifty years of medical practice.——Dr. Richard A. Bolt, Cleveland, will leave the first week in April to spend about six months in Germany and Austria studying maternal and child welfare conditions under a grant from the Oberlaender Trust Fund and the Carl Schurz Foundation.

Society News.—Dr. Samuel Brown, Cincinnati, addressed the Montgomery County Medical Society, Dayton, February 3, on abdominal tumors.——Drs. Adolph O. Pfingst, Louisville, Ky., and Joseph Stein addressed the Cincinnati Academy of Medicine, March 13, on "Endarteritis Obliterans with Unusual Ocular Findings" and "Treatment of Hay Fever," respectively. Dr. Fred W. Rankin, Lexington, Ky., addressed the academy, February 13, on surgery of the colon. —— Dr. Dean Lewis, Baltimore, President-Elect, American Medical Association, addressed the Columbus Academy of Medicine, January 30, on "Arteriovenous Aneurysm." —— Dr. Louis J. Karnosh, Cleveland, will address the Mahoning County Medical Society, Youngstown, March 21, on "Highlights of Brain Function." Dr. Edward Starr Judd, Rochester, Minn., spoke, February 21, on acute cholecystitis.——The Doctors' Symphony Orchestra of Akron gave a concert in Canton, January 26.

OREGON

Bill Enacted.—S. 235, providing that the state board of health shall consist of eight members, seven of whom shall be physicians and one a dentist, has become a law.

RHODE ISLAND

Dr. Cary Speaks at Annual Dinner.—Dr. Edward H. Cary, Dallas, Texas, President of the American Medical Association, was the guest of honor at the annual dinner of the *Rhode Island Medical Journal* in Providence, February 20, attended by nearly 200 physicians. Dr. Cary discussed economic questions now before the medical profession and Federal Judge Ira Lloyd Letts, questions affecting both the medical and the legal professions. Dr. Frederick N. Brown, editor of the journal, was toastmaster. A brief case and a Texas flag were presented to Dr. Cary, who was introduced by Dr. Norman Darrell Harvey, Providence, president of the Rhode Island Medical Society.

TENNESSEE

Bills Introduced.—H. 427 proposes that, in the distribution of a decedent's estate, claims for the services of the attending physicians during the decedent's last illness and claims for funeral expenses shall have priority over all other claims, except necessary administration expenses. S. 224, to amend the workmen's compensation act, proposes that an employer shall supply an injured employee such medical and surgical treatment as may be reasonably required for thirty days after receiving notice of injury, but the total liability of the employer is not to exceed $300 for physicians' bills and $300 for hospital expenses.

Health at Memphis.—Telegraphic reports to the U. S. Department of Commerce from eighty-five cities with a total population of 37 million, for the week ended March 4, indicate that the highest mortality rate (17.9) appeared for Memphis and the rate for the group of cities as a whole, 11.5. The rate for Memphis for the corresponding week of 1932 was 17.7 and that for the group of cities, 13.4. The annual rate for the eighty-five cities for the nine weeks of 1933 was 12.5, as against a rate of 12.3 for the corresponding period of the previous year. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for a large area or that they have a large Negro population may tend to increase the death rate.

TEXAS

Bill Introduced.—S. 178, to amend the workmen's compensation act, proposes to require the employer of an injured employee to furnish such medical, surgical and other treatment, nursing and hospital service, as the nature of the injury or the process of recovery may require. Under the present law, the employer need only furnish such services for the first four weeks after an industrial injury.

WEST VIRGINIA

Society News. — Dr. Henry J. Gerstenberger, Cleveland, presented a "Cinematographic Demonstration of Various Conditions and Diseases of Infants and Children" before the Ohio County Medical Society, Wheeling, February 17. Dr. Deryl Hart, Durham, N. C., addressed the society, February 3, on "Treatment of Empyema by Tidal Irrigation."——A symposium on tuberculosis was presented before the Raleigh County Medical Society, January 24, at a meeting at Rutherford Sanatorium, Beckley, with the following speakers: Drs. George H. Barksdale, and Russel Kessel, Charleston; Tyler R. Boling and George F. Grisinger, Beckley.——Drs. Walter N. Rowley and John C. Matthews, Huntington, addressed the Logan County Medical Society, Logan, January 18, on "The Place of Low Cervical Cesarean Section in Pathological Labors" and "Fallacies in Urologic Diagnosis," respectively.

Bills Introduced.—S. 160 and H. 536, to amend the laws relating to the practice of midwifery, propose that all persons of good moral character and free from infectious disease who present letters of recommendation from two reputable citizens of the state, by whom they have been employed as midwives, are to be licensed to practice midwifery, without examination. H. 511, to amend the chiropody practice act, proposes that all applicants for licensure shall be graduates of reputable high schools and graduates of schools of chiropody recognized by the state department of education as being of the proper standard. H. 451 proposes to require physicians making medical or surgical examinations of patients to furnish on demand of their patients detailed reports in writing of such examinations. Every operator or owner of an x-ray machine must, on the request of persons examined, furnish copies of the roentgenograms made.

WISCONSIN

Speakers' Bureau Organized.—Seventy Wisconsin physicians have volunteered their services as speakers for county medical societies in cooperation with a speakers' bureau organized by the State Medical Society of Wisconsin, according to a recent announcement. These physicians have offered to speak at county society meetings within a radius of 75 miles from their homes. It is expected that other speakers will be added to the lists as the plan is expanded. Dr. Arnold S. Jackson, Madison, is chairman of the committee on scientific work, which arranged the new bureau.

Fifty Years in Practice.—Dr. Frank S. Wiley, Fond du Lac, was the guest of honor at a banquet, February 20, at St. Agnes' Hospital given by the Sisters of St. Agnes and the Fond du Lac Medical Society, marking the fiftieth anniversary of his entrance into medical practice. Dr. Stephen E. Gavin presided and eulogies of Dr. Wiley were made by various physicians and other citizens, including Drs. Stanley J. Seeger, Milwaukee; Otho A. Fiedler, Sheboygan; Clarence W. Hopkins, Chicago; Frank Gregory Connell, Oshkosh; David V. Meiklejohn, Fond du Lac, and Attorneys L. A. Williams and F. A. Foster. A leather bound testimonial book containing the names of the guests and a complete report of the dinner was presented to the guest of honor. Dr. Wiley, who is chief of staff at St. Agnes' Hospital, was graduated from Rush Medical College, Chicago, in 1883.

GENERAL

Negro Health Week. — The nineteenth annual Negro Health Week will be observed the week beginning April 2. The celebration is under the auspices of the Tuskegee Negro Conference, the National Medical Association, the National Negro Business League and the National Negro Insurance Association, in cooperation with the U. S. Public Health Service.

Listing of Specialists.—At the annual Congress on Medical Education and Licensure in Chicago, February 13, a resolution was adopted endorsing a plan for the listing of specialists by the Council on Medical Education and Hospitals of the American Medical Association in the manner it now designates those specializing in radiology and pathology. Dr. Ray Lyman Wilbur, Stanford University, Calif., chairman of the council, outlined the plan in an address before the congress.

Tri-State Meeting.—The thirty-fifth annual session of the Tri-State Medical Association of the Carolinas and Virginia was held in Greenville, S. C., February 13-15. Dr. Francis B. Johnson, Charleston, S. C., was elected president to succeed Dr. Clarence A. Shore, Raleigh, N. C., who died three days before the meeting. Vice presidents elected were Drs. Charles N. Wyatt, Greenville, for South Carolina; John W. Davis, Jr., Lynchburg, for Virginia, and Foy Roberson, Durham, for North Carolina. Dr. James M. Northington, Charlotte, N. C., was reelected secretary. Dr. William W. Duke, Kansas City, Mo., was the guest speaker, giving an address on allergy at the annual dinner.

Change in Status of Licenses.—The Pennsylvania State Board of Medical Education and Licensure recently reported the revocation of the license of Dr. Walter W. Senn, Williamsport, Nov. 30, 1932, because of narcotic addiction. The state board of medical examiners of Arkansas revoked the license of Dr. Junius Ruth, Rison, at a meeting, Nov. 8, 1932, for chronic and persistent inebriety. The license of Dr. Benjamin H. Smart was revoked, January 3, by Justice Daniel W. O'Donoghue of the Supreme Court of the District of Columbia. Dr. Smart was convicted on the charge of criminal abortion and sentenced to two years in jail. At a meeting of the Virginia State Board of Medical Examiners, Dec. 7-11, 1932, the license of Dr. George H. Benton, formerly of Coral Gables, Fla., was revoked on account of his conviction for violation of the Harrison Narcotic Act.

Medalist and Lecturer Selected.—Alfred Newton Richards, Sc.D., since 1910 professor of pharmacology, University of Pennsylvania, Philadelphia, will be awarded the Kober Medal for 1933 by the Association of American Physicians during its annual meeting in Washington, D. C., May 9, in recognition of his work on diseases of the kidney. The medal is provided by the George M. Kober Foundation of Georgetown University, Washington, which was created in 1923 by the late Dr. George M. Kober, former dean of the medical school. Dr. Rolla E. Dyer of the U. S. Public Health Service, Washington, has been designated as the Kober Lecturer for 1933 by the Association of Military Surgeons of the United States, under the terms of the foundation. He will deliver the lecture, March 25, at Georgetown University. Dr. Dyer became infected with typhus fever last fall from the bite of a rat flea while conducting experiments.

Monograph on the Common Cold.—The Pickett-Thompson Research Laboratory of London, England, has published a Monograph on the Common Cold. This, the eighth volume to come from this laboratory, comprises 699 pages and 51 full page plates, with especial reference to the part played by streptococci, pneumococci and other organisms. The need for volumes of this kind is obvious when it is realized that there are at least 50,000 research papers published annually on biologic problems. The authors have reviewed the enormous number of research papers on the common cold and assembled the knowledge that has been acquired by thousands of workers on this subject. This monograph, in addition to the review of the literature, presents the research of the authors, which has covered a period of fifteen years. They have studied intensively a comparatively small number of cases, believing that more information is likely to be obtained by protracted and careful bacteriologic investigations on a small number of persons than by giving less study to each of a much larger number. The authors are convinced that the common cold is not a single definite disease. They believe in the plurality of colds caused by different species of bacteria, and that there are pneumococcal colds, streptococcal colds, colds caused by the influenza bacillus, and colds caused by the M. catarrhalis. Among the chapters in this monograph are the following: The Epidemiology of the Common Cold; The Part Played by Chill in the Causation of Colds; Other Factors Which May Cause a Predisposition to Colds; The Bacteriology of the Trachea, Bronchi and Alveoli; The Bacteriology of the Normal Mouth; The Structure and Physiology of the Nose; The Prevention of Colds and Influenza; Vaccines in the Prevention and Treatment of the Common Cold; Bacteriology of Nasal Sinusitis, and Noncontagious Colds.

FOREIGN

Mental Hygiene Congress. — In a list of international congresses to be held in Europe in 1933, published in THE JOURNAL, January 21, page 199, an "International Congress on Mental Hygiene, Rome, in September" was incorrectly included. The next International Congress on Mental Hygiene will be held in Paris in 1935, according to Mr. Clifford W. Beers, secretary of the international committee. The meeting to be held in Rome, September 27-28, will be the Second European Reunion on Mental Hygiene. Subjects to be discussed at this meeting will be "Mental Hygiene and School," "Extrahospital Assistance to Persons Predisposed to Mental Illness and to Patients Dismissed from Psychiatric Hospitals," and "Importance of the Family for Mental Hygiene." Information concerning this meeting may be obtained from the secretary of the Italian League for Mental Hygiene, Via Masaccio 119, Florence, Italy.

Meeting of Chinese Medical Association.—The first general conference of the newly formed Chinese Medical Association was held in Shanghai, Sept. 28-Oct. 5, 1932, under the presidency of Dr. Way-Sung New. This society is an amalgamation of the China Medical Association, founded by and largely composed of missionaries, and the National Medical Association of China, founded in 1915 by Chinese practitioners trained in western medical colleges. Representatives from remote provinces of the republic of China as well as visitors from Manila, Korea and Great Britain attended. Major P. G. Edge, assistant lecturer in epidemiology and vital statistics, London School of Hygiene and Tropical Medicine, delivered the principal lecture of the conference, on "The Importance of Statistics in Medicinal Research and Practice." Major Edge has been lent for six months to the Henry Lester Institute, Shanghai. The first National Conference on Leprosy in China and meetings of the Chinese Society of Microbiology and the Chinese Physiological Society were held during and immediately following the general conference.

Deaths in Other Countries

Sir William Taylor, since 1922 regius professor of surgery, Dublin University, Dublin, Ireland, and from 1927 to the time of his death, president of the Royal Academy of Medicine in Ireland; author of many papers on surgery; suddenly, in Dublin, aged 61.

Government Services

Medical Reserve Officers' Training School

A training period for medical department reserve officers of the army and navy was conducted at Washington University School of Medicine, St. Louis, February 12-25, through the cooperation of the faculty of the school and the medical departments of the two branches of the service. The training was also open to officers of the National Guard. The program of clinics was under direct supervision of the faculty of Washington University School of Medicine, and the military instruction under that of Col. George A. Skinner, surgeon of the Seventh Corps Area, and Lieut. Commander Reuben H. Hunt, Medical Corps, U. S. Navy.

W. G. Campbell Heads Food and Drug Administration

Walter G. Campbell, director of regulatory work of the U. S. Department of Agriculture since 1923, has resigned and that position has been abolished. Mr. Campbell will henceforth be chief of the Food and Drug Administration, over which he has had jurisdiction as director of all the department's regulatory work. Secretary Hyde announced that under Mr. Campbell's direction the law enforcement activities of the department have now been assigned to the various bureaus so that a director of regulatory work is no longer necessary.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb. 18, 1933.

Ignorance of the Ultimate Causation of Disease

In a characteristically philosophic and stimulating address to the Guild of Public Pharmacists, Mr. Wilfred Trotter has pointed out how important is the causation of disease and how great is the want of exact knowledge on the subject. The fundamental activity of medical science, he says, is to determine the ultimate causation of disease, but though this sounds like a commonplace it is not kept clearly in mind. The brilliance of the great discoveries that have elucidated the processes of disease tend to obscure the fact that many of them tell nothing about the ultimate causation. Recent progress in knowledge of the internal secretions in the production of symptoms has contributed but little enlightenment in the matter of ultimate causes. Much of the work, though of the greatest value, has been on the physiologic level and has scarcely penetrated fundamental pathology.

A consideration of the actual situation as regards knowledge of the causation of disease reveals that only six agents can be enumerated: injury, malformation, defect of diet, poisoning, infection and neoplasm. Two of these—malformation and neoplasm—are not primary in a strict sense, since in time they will almost certainly be resolved into other factors. Thus only the other four are left. Diseases can be classified into three groups: (1) those which can be assigned with certainty to one of the four causes enumerated, (2) those which have been assigned with more or less probability, and (3) those the cause of which is unknown. The rate at which diseases pass over from the third to the first group is now slow and tends to become slower. Hence the question arises whether a time may not come when the application of known principles to the causation of disease will be at a standstill. Will further explanation depend on the discovery of some new principle comparable to the microbe and the vitamin—the two great developments of the last sixty years? Such common and serious diseases as exophthalmic goiter, diabetes and multiple sclerosis have been investigated for a long time and with increasing refinement of method; yet, however much is learned of their mechanism, nothing is known of their ultimate causation.

In the last sixty years, two wholly new causes of disease have been discovered—microbic infection and vitamin deficiency. The first explained a group of diseases with a certain broad clinical resemblance, but the diseases due to the second show differences of the widest kind, such as those between rickets, beriberi and scurvy. Moreover, the deficiency diseases tend to mimic the diseases caused by other agents, as shown for example, by the resemblance between vitamin B deficiency and alcohol poisoning, each with its acute cerebral symptoms and chronic peripheral neuritis, and by the resemblance of scurvy to an infection. The discovery of deficiency diseases has thus disclosed that allied causes may produce clinical effects showing no hint of any kind of relation and thus made it more difficult to get any hint from clinical phenomena as to new prime agents of disease.

Up to the present, medicine has almost wholly avoided the burden of measurement and made progress by qualitative methods. Perhaps the main harvest of these methods has been garnered and an exact and exhaustive numerical exploration of the facts of disease will have to be undertaken. The practical success and continued progress of medicine tend to obscure the fact that it is without precise data; consisting merely of approximations.

The Cost to Hospitals of Automobile Accidents

The expense of traffic accidents falls with especial severity on hospitals situated on a main road and equipped only for the service of the district. Such hospitals may have their finances deranged by the great demand on their resources for the treatment of injured persons from far and near. In the road traffic act of 1930 a clause was inserted which enables hospitals to recover costs from insurance companies only when the motorist involved is found liable for the accident and when the injured party is an inpatient. At a meeting of the Association of Hospital Officers, Mr. C. M. Power produced figures to show that the hospitals are successful in recovering costs in less than 35 per cent of traffic road accidents treated in their wards, while they are precluded from recovering the cost of treatment of the thousands of automobile accidents treated in their surgeries. When the cost of subsequent outpatient treatment of surgical cases is added, the cost is substantial. An amending bill has been drafted that would enable the hospitals to recover the cost of treating road accidents unless the accident is proved to be due to the negligence of the person injured. Owing to the onus now put on the patient to prove the negligence of the driver of the car and to the fact that the great majority of the patients taken to hospitals are poor and unable to face the possibility of legal costs, the hospitals are placed at a disadvantage in prosecuting claims for maintenance. In the case of children it is seldom possible to obtain evidence to assist parents in their claim for compensation. Figures for eighteen hospitals for 1932 show that the cost of treating 2,692 patients was $120,000, of which only $30,000 had been recovered from insurance companies. The constructive proposals put forward were that every hospital should follow up its claim for costs of maintenance and should accept no compromise where liability was acknowledged; that hospitals should endeavor to come to a better understanding with insurance companies, arranging a fixed charge of maintenance with them, and that a panel of lawyers should be appointed to assist patients in the prosecution of claims. It was also suggested that representations be made to the minister of transport on the hardship imposed by limitation of the allowance to hospitals of a maximum of $125 per patient.

A New Medical Journal: The Medico-Legal and Criminological Review

The Medico-Legal Society, which formerly published an annual volume of transactions, has decided to incorporate these in a quarterly medical journal in order that the papers of the society may become available to readers interested in medicolegal subjects soon after delivery. There will also be a review of the medicolegal material appearing in contemporary foreign journals not usually seen by the members of the legal and medical professions. It is also intended to include reports of proceedings of foreign medicolegal societies and reviews of books. The joint honorary editors, Dr. Gerald Slot and Mr. Everard Dickson, will endeavor to maintain a balance between the medical and legal aspects, so that the material provided will be useful to both physicians and lawyers. The *Review* will be issued free to members of the Medico-Legal Society: for others the annual subscription will be $3 per annum. The publishers are Balliere, Tindall & Cox, Henrietta Street, London, W. C. 2. The principal papers in the first issue are on "Medico-Legal Practice," by Sir John Collie (an authority on malingering in this country) and the "Medico-Legal Significance of Impotence in the Male and Female." The abstracts are a valuable feature. They are classified into the following sections: criminal and social prophylaxis (sterilization of defectives); drunkenness and its medicolegal aspects; forensic obstetrics; forensic psychiatry and psychology; injuries; insurance medicine; occupational diseases; paternity and blood grouping; poisoning; therapeutic accidents and medical negligence; violent

death from physical causes. The new journal should certainly supply the wants of physicians, lawyers and others interested in medicolegal subjects. It is the only journal dealing exclusively with these subjects published in the English language.

PARIS

(From Our Regular Correspondent)

Feb. 1, 1933.

The Veterans, the Budget and a Tax on Physicians

The difficulties the government is encountering in endeavoring to balance a budget that shows now a deficit of more than $450,000,000 compel it to seek new sources of revenue. Everybody believes that the deficit is due to the extravagance with which, during the recent prosperous years, the ministries increased the salaries of civil servants, pensioned large numbers of persons, and created a ruinous social insurance system and retirement at age 50 for all old soldiers not only of the World War but of all the campaigns carried on by France in the colonies, in Syria and in Morocco, since 1870. The total number of veterans is 4,000,000, and the number is increasing every day, owing to the fact that, through political favoritism, persons who never left their homes are granted pensions as ex-service men. The government sought to reduce by merely one tenth all the salaries and pensions; but it encountered formidable resistance, supported by the members of parliament for whom all these beneficiaries constitute a powerful electorate. It has not had the courage to suppress the compulsory social insurance system, in spite of the evidence of its destructive effects. It has preferred to seek an increase of the revenue from the existing taxes and duties, and contemplates more particularly increases in the taxes paid by the liberal professions—the lawyers and the physicians. The latter especially appear to be singled out. They are accused of always making inaccurate declarations of their professional income, owing to the fact that the government cannot exercise any adequate supervision of their revenues. The physician who receives a fee from his client in his office enters, it is alleged, whatever he likes in his financial record. The law has supported him in his refusal to open his records to the inspection of the agents of the national treasury, since the right of privileged communication entitles him to keep secret the names of his patients. The financial minister is contemplating requiring the physicians to issue clients' receipts for all sums paid to them, and to fill out, at the same time, stubs showing the amount received but omitting the name. The stubs would be checked up, each year, by the agents of the national treasury. The Conféderation des médecins de France immediately filed an energetic protest against any such project, which would incite the discontented client to become an informer against his physician, in case the latter had committed any irregularity in making out the receipts or the stubs. Furthermore, every physician gives a large number of free consultations to members of his family, to his friends and in the dispensaries. It has been suggested also that every prescription of a physician, in order to be filled by a pharmacist, be required to bear a stamp supplied by the physician, the denomination of the stamp to vary with the amount received for the consultation. These stamps would constitute a special tax imposed on the physician. The pharmacists themselves protested against such an innovation, as physicians would be inclined to write fewer prescriptions. Finally, it has been suggested that a special tax be levied on the physician, the amount to be determined by the fiscal agent on the basis of his presumed income and his mode of living: amount of rent paid, number and style of vehicles, number of servants, and the like. In case of disagreement, a special commission, including a physician, would establish the probable amount of income. But such a basis would result in numerous forms of injustice, since the rent paid by the physician depends on the size of his family, whereas these expenditures may be supplied by his personal fortune and that of his wife, which in some instances would exceed by far the strictly professional income. That is true particularly in the case of well-to-do physicians who have few clients and who devote themselves chiefly to scientific researches. At all events, the medical profession is being threatened with various unjust proposals.

The Contagiousness of Epidemic Encephalitis

Although epidemic encephalitis is still obscure as to its origin, there appears to be no question about its being contagious. Addressing the Société des médecins des hôpitaux de Paris, Mr. Renaud, and later Mr. Netter, emphasized the long period during which patients who have recovered or who have become affected with Parkinson's disease remain germ carriers. They cited numerous cases in point, particularly cases of parkinsonism of long standing. How the contagion is transmitted is not known, but it appears to require peculiar conditions. The presence of marked changes in the interacinous spaces of the salivary glands leads to the assumption that the saliva plays a rather important part as a vehicle of the contagion. Mr. Etienne Bernard recalled a case of acute edema of the lung, which he observed, together with Mr. Bezançon, in a case of encephalitic parkinsonism of long standing, in which there appeared to be a new attack of encephalitis at the site of the bulb. The anatomic studies in this case pointed in this direction. Mr. Comby cited a case of late familial contagion traceable to a patient with parkinsonism.

The Difficulties of Public Health Work

One of the obstacles to an efficient organization of public health work in France, where the depopulation is due to the excessive mortality, lies in the law, which gives too much power to the municipal councils. The members of these councils, who are elected by the voters, regard it their principal duty to see that the taxes are not increased. In most of the rural communes, the members of the councils refuse to entertain any suggestions that might compromise their reelection. Hence, they are absolutely indifferent to the hygienic conditions, and are not willing to consider plans for the improvement of the water supply or for the creation of dispensaries.

BERLIN

(From Our Regular Correspondent)

Feb. 6, 1933.

The Gas Menace in Hospitals

In the Charité Hospital in Berlin, some 200,000 roentgen films are stored. The surroundings are as nearly fireproof as human ingenuity can make them, but if a fire should break out, one must be prepared to combat a possible menace of gas. In an address on "Gas- und Luftschutz," Dr. Kuhnert, the superintendent of the Charité Hospital, called attention to this menace. He had invited a number of experts to hear a report on the subject of protection against poisonous gases, presented by the hygienist Stabsarzt Dr. Otto Muntsch. Muntsch is the author of a well known work on diseases caused by war gases. His address included tabulations, statistics, preparation and demonstrations of gas protection apparatus. The hospital, he stated, is the place to try out apparatus for gas protection. In view of the recent phosgene catastrophe in Hamburg, and the more recent disorders caused by poisonous gases in Belgium, gas protection has become more important. Muntsch described the symptoms of poisoning by the various gases, as well as the means of defense. The people must be instructed as to the effects of poisonous gases, in order that they may adopt prophylactic measures. The hospitals should not only provide suitable apparatus for treatment of gassed persons but also introduce special courses for the training of physicians in

the care of these patients. To protect patients in hospitals, measures must be adopted against dangers arising from gas attacks and conflagrations. The prophylaxis will vary with the location of the buildings and the type of construction. The gas protection crews, provided with masks and resuscitation apparatus, must be trained so that, if suddenly needed, they will be able to transport patients to safety. There were many pessimistic enough to assert that prophylactic measures would be of no aid.

Multiple Sclerosis and Heredity

One of the younger investigators in the field of heredity, the internist Curtius at the University of Heidelberg, has published the results of his research on multiple sclerosis in relation to heredity. He studied the families of 106 multiple sclerosis patients. More than 52 per cent of the living persons were examined in person, and nearly 90 per cent of the relatives could be studied exhaustively. His statistics consisted of an unselected collection of material and computation of the corrected percentages in accordance with the Rüdin-Weinberg-Luxenburger method. A comparison of his statistics was made with similar values in the average population and also with the "average population" of Luxenburger and Schulz. The comparative values in the multiple sclerosis families and the average population, according to Luxenburger, for schizophrenia, were 1.27 and 0.90; for manic-depressive insanity, 1.22 and 0.30; obscure psychoses, 1.44 and 0.80; dementia paralytica, 0.99 and 1.24; cerebrospinal syphilis, 0.22 and 0.28; epilepsy, 1.10 and 0.18; senile dementia, 4.32 and 0.54; dementia arteriosclerotica, 2.93 and 0.35. On the whole, the frequency of disorders of the nervous system in the multiple sclerosis relatives was from two to three times as great as in the normal population. The degree of consanguinity ran parallel with the intensity of the hereditary taint. The taint in the multiple sclerosis families consists essentially of such hereditary anomalies as epilepsy, weakmindedness, hereditary tremor, hereditary hardness of hearing and hereditary nystagmus. Hereditary predisposition plays an important part in the genesis of multiple sclerosis—with which is associated possibly an exogenic factor, or causative agent. Further scrutiny of the results of this research by comparison with other similar material is needed.

Financial Condition of the Sick Benefit Associations

A question much discussed is whether the increase in the number of members of the sick benefit associations who are unable to pay their dues will lead to serious difficulties affecting the financial situation of these associations. Mr. F. Okrass, a director of the chief league of German sick benefit associations, has made a public statement to the effect that he does not share the pessimistic views commonly heard, even though conditions have made necessary certain restrictive measures. At the end of the first quarter of 1932, the total receipts from membership dues showed a deficit, as against the expenditures, of 0.85 marks (21 cents) per member; but the total receipts exceeded the expenditures by 0.65 marks (16 cents) per member. Expressed in percentages of the total expenditures, medical treatment for the first quarter of 1932 required 20.0 per cent as compared with 17.6 in the first quarter of 1931; medicines and other remedies required 11.1 per cent as against 10.5 per cent; hospital care, 14.2 per cent as against 12.9 per cent, and sick benefits, 27.1 per cent as compared with 33.3 per cent. At the end of 1930, the funds held by the ortskrankenkassen (local associations) amounted to 39.93 marks ($9.50) per insured member; the landkrankenkassen (provincial associations), 18.05 marks ($4.29); the betriebskrankenkassen (industrial associations), 65.69 marks ($15.63); the innungskrankenkassen (guild associations), 40.93 marks ($9.74), and the knappschaftskrankenkassen (miners' associations), 143.59 marks ($34.17). Owing to the type of the invested funds, the assets of the sick benefit associations represent, however, in reality a much lower sum than the book values.

Physicians in the Service of Municipalities

There are many physicians in Germany who are engaged by municipalities and various organizations. Their compensation is not large but usually suffices to cover their most necessary expenditures. This class is beginning to feel the pressure of the economic situation. After the deliberations of the hospital physicians with the employers' leagues of Germany had failed, the government-appointed arbitrator of the two parties called a meeting for January 18 to reach an understanding. The representatives of the assistant physicians were ready to make concessions, but the attempt to effect a compromise failed owing to the endeavor of the employing organizations to introduce a different method of payment. These organizations insisted on the introduction of a cash payment in addition to maintenance, in order to be able to compensate the nurses in the same manner. The assistant physicians, however, held that the mode of payment that has been in general use (classification in the group compensated in the manner provided for university men) is correct and that it has proved its value in recent years. As the contending parties could not reach an agreement, the arbitrator Professor Brahn declared the deliberations closed.

ITALY

(From Our Regular Correspondent)

Jan. 15, 1933.

Sanitary Conditions in Italy

The incidence of infectious diseases in Italy has shown an improvement in recent years. The number of cases of smallpox and varioloid, which in 1921 was 4,644, dropped in 1929 to 6 and in 1930 and 1931 to 0. The decrease is doubless due to vaccination against smallpox, and revaccination at the age of 8, which have been made compulsory.

In 1921 there were 35,527 cases of typhoid and paratyphoid infections, after which there was a steady decline to 24,682 cases in 1931.

Tropical diseases have been virtually eradicated. Of exanthematic typhus there were only a few outbreaks in 1921, 1926, 1927 and 1928. No cases of cholera were observed during the decade. Small outbreaks of plague occurred in 1921 and 1922. There have been no cases since 1927.

Sanitary legislation has been developed and includes compulsory notification for a greater number of infectious diseases, compulsory antityphoid vaccination for certain groups particularly exposed to contagion, and antidiphtheritic vaccination with the Ramon anatoxin. In the chief city of every province, a laboratory of hygiene and prophylaxis has been established. A control of serums, vaccines and arsphenamines has been provided. The regulations pertaining to the supervision of milk and the compulsory crusade against flies have been revised.

Congress of Neurology

The Società italiana di neurologia held recently its ninth national congress in Modena. The single topic on the program was "Present-Day Conceptions of the Physiopathology of the Extrapyramidal System." The official speaker was Professor De Lisi, director of the Clinica neurologica of the University of Cagliari. He emphasized that an extensive revision of the theories pertaining to this subject was needed. For example, there has been advanced the conception that the fundamental function of the extrapyramidal system is postural tonus. Adequate demonstrations of the mechanism of this function have not been given. The interpretation of pathologic movements has thus far been dominated by the theory of localization, and many attempted solutions are now recognized as false or at least too categorical. Chorea, regarded as of striatal origin,

is attributed rather to anomalous cerebellar stimuli applied to the sensomotor cortex.

The problem of hyperkinesia requires for its explanation knowledge not yet acquired of the essential nature of nervous energy.

In studying the function of the extrapyramidal system, as regards the coordination of postural activity and myostatic innervation, the action of the cerebellum must be considered. The study of extrapyramidal changes in psychosis and of psychopathic and neurovegetative manifestations in extrapyramidal diseases has brought out many points of analogy and has confirmed the conception of an intimate correlation between extrapyramidal, neurovegetative and psychic functions. Hence, "extrapyramidal" is not solely an anatomic term but represents a wide physiologic and clinical conception, concerning the precise aspects and limitations of which it would be useful to reach an agreement.

Numerous communications were presented. Lugaro of Turin gave an account of his research on the question of the medullated and amyelinic nerve fibers in the posterior roots. Mazza of Reggio nell'Emilia reported his research tending to refute the tuberculous origin of dementia praecox. Donaggio of Modena explained a new urine test, applicable also to the cerebrospinal fluid.

The congress passed a resolution urging the government to include neurology among the required subjects for the government examination in medicine. Professor Tanzi was chosen as honorary president and Professor Donaggio as active president of the society. Rome was chosen as the place of the next congress.

Professor Bruschettini

The death of Prof. Alessandro Bruschettini, bacteriologist of Genoa, has been announced. He studied rabies and tetanus and was the first to affirm that the toxin of tetanus, just as the virus of rabies, is transmitted from the point of infection to the nerve centers along the nerve paths. He was among the first to advocate vaccinotherapy and he manufactured a plurivalent antipyogenic vaccine. In recent years he occupied himself almost exclusively with problems concerning immunity to tuberculosis.

BUDAPEST

(From Our Regular Correspondent)

Feb. 7, 1933.

New Rules for Writing Prescriptions

The Ministry of Public Health issued a booklet, compiled by Dr. Joseph Melly, with the title "The Duty of Practitioners Toward the Magistrates," which contains some new rules for the filling of prescriptions. The main paragraphs are as follows: 1. The prescribing of drugs necessitates that prescriptions be signed with the full name of physicians. In urgent cases any plain paper may be used but, as a rule, prescription blanks shall bear the printed full name and address and the telephone number of the physician, particularly if the prescription embodies drugs that are declared in the pharmacopeia to be poisons. If drugs are ordered which are marked in the pharmacopeia as + or ++ poisons, the physician is obliged to give in writing full directions; it is strictly forbidden to write "according to directions" or "instruction." Pharmacists must not deliver poisonous drugs so prescribed. Prescriptions containing poisons designated by two crosses, if for the residents of villages where there is a pharmacy, may be prepared and delivered within two days; where there is no pharmacy, within four days. Medical prescriptions in which two cross poisons are ordered may be renewed by pharmacists only in case the renewal is ordered by a physician by inserting the words "repetatur" or "reiteratur" and his signature and the new date. If corrosive mercuric chloride is prescribed, the pharmacist has to retain the prescription and register it in his poison ledger with a serial number. Pharmacists have to retain also all prescriptions that call for excessive dosages. These have to be registered and kept for at least ten years. Patients are entitled to copies of the prescriptions, but the word "copy" has to be displayed on them.

The Bacteriologic Institute

The city of Budapest built a magnificent bacteriologic institute, which attracts visitors from all parts of the world. Recently the institute issued its first report, embracing the work done in 1931. Owing to the small number on the staff, the ever increasing examinations can be done only by indefatigable work on the part of the personnel. The institute examines bacteriologically the city water and has undertaken to make plans for supplying water to the new suburbs of greater Budapest. The bacteriologic examinations of ice justified the campaign started by the chief medical officer against the use of natural ice. On the initiation of the chief medical officer, the institute started the supervision of all dairies of the capital and carried on research on the city's atmosphere.

The overwhelming amount of material to be tested is the result of the compulsory bacteriologic examinations which were recently required. In 1931 the institute made 3,380 tests for diphtheria, 8,141 tests for typhoid and 9,839 Wassermann tests. Besides numerous other tests, the institute produced 6,000 doses of scarlatina streptococcus vaccine and collected measles reconvalescent serum. Two physicians of the establishment made 20,000 protective inoculations against diphtheria on children.

Efforts to Improve Obstetrics

The recent statement of Max Hirsch, professor of obstetrics in Berlin, that there had been no practical achievement in the field of obstetrics in the last thirty years, was significant. Hirsch suggested the remedy that all confinements which from the beginning promise to be abnormal should be terminated by cesarean section. Dr. Burger, assistant to Professor Frigyessi of the first obstetric clinic of Budapest University, reported in the *Orvosi hetilap* his results in the clinic in 117 cesarean sections. He endorses Hirsch's proposal. He believes that the indications for forceps need revision; better results may be achieved if their use is not excessively restricted but the indications are amplified on scientific grounds. Still better results may be achieved if in certain cases, after thorough consideration, cesarean section is decided on earlier than usual.

These conclusions are logical not only because the results in obstetrics are far from ideal but because of the ever growing number of elderly primiparas as a result of the present social and economic conditions. It would be unwise to impose on these the risk of a so-called trial labor as was done before the war. It must not be forgotten that the majority of pregnant women at present are forced to work in their own homes or outside and thus they feel the disadvantages of pregnancy to a greater degree. From a rational point of view this question is of first importance, because, owing to the desperately low birth rate of almost all European countries, it is the supreme duty of physicians to save the life of mother and child.

Influenza in Hungary

The present influenza epidemic has made its appearance in Budapest and in one or two other large cities. The cases are fairly mild. The incidence in Budapest recently was so great that several schools, offices and warehouses had to be closed. Some of the cases resemble acute food poisoning, being associated with vomiting, diarrhea and tenderness in the right iliac fossa. Parts of Hungary, chiefly the lowland, are free of the epidemic. According to late reports, influenza has spread through Rumania to Bulgaria and Greece. Although the number of cases of respiratory disease has been rising in Bucharest, there is as yet little evidence of an outbreak.

VIENNA

(From Our Regular Correspondent)

Jan. 15, 1933.

The Jewish Population of Vienna

In a publication on the Jewish population of Vienna (numbering 200,000) are figures that permit a comparison with the data on the non-Jewish population (1,600,000). The births among the Jewish population during the four-year period 1928-1931 were 1,362, 1,343, 1,222 and 1,064, respectively, which reveals a constant decrease over this period, the fourth year showing a diminution in the birth rate of nearly 25 per cent. The deaths for the four years were 2,669, 2,710, 2,598 and 1,735. In comparison with the non-Jewish population, whose births declined during the period only 16 per cent, the decline among the Jewish population was almost one half greater. The mortality in the two sections of the population was almost equal, being about 13 per thousand. However, the mortality according to age groups shows marked differences. The mortality of Jewish children under 12 months of age was 67, 55, 37 and 36, respectively, or 2.5, 2, 1.5 and 1.5 per cent of the total general mortality, as compared with a percentage about three times as high among the non-Jews. The deaths among the Jewish population in the 80-90 age group were 197, 223, 196 and 240, respectively. In general, many more women than men attain age 80. The corresponding percentage among the non-Jewish population is below 6 in the 80-90 age groups. The age groups 50-60 showed a higher mortality among the Jews, the deaths constituting about 23 per cent of the total mortality, as compared with 18 to 19 per cent among the non-Jewish population. In both classes of the population, however, the women of these age groups show a greater resistance than the men, whereas in the age groups 30-40, in both classes, the women show a higher mortality than the men. There was no great difference in the causes of death, except that mental disorders were somewhat less frequent among the Jews and disorders of metabolism were more frequent than the average for the whole republic. The increase in the number of deaths from neoplasms and from circulatory disturbances corresponds to the general average, but the increase in leukemic conditions is noticeable. Tuberculosis is comparatively rare among the Jews; only from 6 to 7 per cent of the deaths are due to tuberculosis, as compared with from 10 to 11 per cent in non-Jews. During the past ten years the Jewish population of Vienna has decreased (70 per cent of all Austrian Jews reside in Vienna) by 20,000, or 10 per cent of the total Jewish population, whereas Vienna's general population has declined only 3 per cent. Unless something brings about a radical change, a total annihilation of the Jewish population within sixty years is certain.

Chemically Pure Vitamin C

At the last meeting of the Vienna Biologic Society there was great surprise at the announcement of Prof. Dr. A. Szent-György of Szeged that he had succeeded in isolating vitamin C in a chemically pure crystalline form. Szent-György obtained from the suprarenal cortex a substance of crystalline form that he terms "hexuronic" acid, which research has shown is identical with vitamin C secured from plants. By chance, Szent-György experimented with the paprika plant, which is so widely used in Hungary. In this plant so much hexuronic acid was found that large quantities could be obtained, which made it possible to establish beyond all doubt its absolute identity with vitamin C. The chemical structure of these two identical substances is $C_6H_8O_6$. There are probably intimate relations between vitamin C and pigment metabolism, which require further explanation. Freckles, naevus pigmentosus, vitiligo and other disturbances of pigmentation can now be studied experimentally to greater advantage. Research to confirm Szent-György's discovery is being carried out in Switzerland. In Vienna and in Germany experiments are being done to determine the relative effects of hexuronic acid and the substance known as vitamin C.

Seventieth Birthday of Professor Pal

Prof. Jacob Pal—teacher and physician—is known throughout the medical world. His seventieth birthday gave his numerous friends a welcome opportunity to honor him by the publication of a large memorial volume. Pal's chief research concerns investigations on the respiration, heart and circulation. The term vascular crisis originated with Pal. His publications on the smooth musculature of the blood vessels, hypertension, the relation between the sympathetic nerve and tonus have made his name known afar. He has purposely avoided honors, that he might work the more. Nevertheless, he has been sought out frequently by learned societies and has become the recipient of many distinctions.

The Treatment of Tachycardia

In connection with a graduate course for physicians in the Medizinisches Seminar, Prof. L. Braun spoke recently on the treatment of tachycardia, which has become so frequent. One distinguishes "sinus" tachycardia, which arises from the sino-auricular node, and the auriculoventricular type, which is associated with auricular flutter and auricular fibrillation. The former type is found in association with fever, excitement or muscular work but seldom ranges above 120 to 160 beats per minute. It is frequently influenced by the respiration. It usually subsides gradually but may subside suddenly. Flutter tachycardia is increased by work, and as a result of alternating "blocking" and "deblocking" there is an irregular pulse. The treatment of all forms of tachycardia was originally purely symptomatic. It is often possible to stop a paroxysmal auricular or ventricular tachycardia by pressure on the vagus nerve, and also by the Valsalva experiment. Relief is sometimes afforded by cold applications to the precordial region, by injections of pilocarpine or physostigmine, or by intravenous administrations of digitalis or strophanthin. Quinine may be regarded as a specific but must be used cautiously because it has also a paralyzing effect on the heart muscle. Quinine hydrobromide is probably the best remedy, given several times a day in from 0.25 to 0.5 Gm. doses (4 to 8 grains). If one desires to use intravenous quinine therapy, the patient must be carefully supervised. Digitalis has a good effect in nonparoxysmal fibrillation and often also in the case of flutter. Many patients with paroxysmal tachycardia are aware of the approach of the attack several hours in advance. In such cases, one can prescribe to advantage quinine prophylactically in rather large doses (0.5 Gm. several times a day).

Increase of Infectious Diseases in Austria

During the past two months, a marked increase in the number of new cases of diphtheria, measles and scarlet fever has been noted in all parts of Austria but more particularly in the rural districts. The epidemic, for that is what it amounts to, is distinguished by its relatively mild type; but the reports agree that there is a tendency for recoveries to be incomplete and for the disease to be followed by a protracted period of convalescence. In Vienna and in the other large cities there is usually an increase of morbidity observed in the fall, especially as regards diphtheria; measles shows more commonly a retrogression. Investigations are now being undertaken by the municipal school physicians. Of the infectious diseases, only influenza and sore throat were prevalent to any great extent in adults. The manifestations of sore throat were, however, in many cases severe and were associated with many complications; but the crisis appears to have been passed.

PRAGUE

(From Our Regular Correspondent)

Jan. 24, 1933.

The Public Health in 1932

In 1932 the continuous decline of the birth rate was accentuated by the economic depression. The final figures for the general death rate, which are not yet available, will probably compare unfavorably with previous years because there were serious epidemics of diphtheria and influenza in the last quarter of the year. No such diphtheria epidemic has occurred in Czechoslovakia since the registration of this disease began in 1890. The epidemic of influenza was as extensive as that of 1927, if not more so. It broke out in December, while the epidemic of 1927 came in February.

The effect of the economic depression on the general nutrition of the population cannot be denied. Nevertheless, on the whole, serious undernutrition has not appeared, mainly because the population employed in large industries did not lose its connection with agriculture. The large industries are in big cities but the working class is recruited from the country, where the family usually remains while the father is employed in the city. The small farms owned by these families enable them to maintain a certain standard of living even though the father may lose his job. The city proletariat has been supported by an unemployment dole paid by the state. The state has also furnished large sums of money for the nutrition of school children of families of the unemployed, and consequently no serious conditions of undernutrition could be found through school medical inspection.

As for medical education, a decrease of medical students was registered at all four medical schools; yet the number of students is still so high that the medical schools cannot provide satisfactory teaching accommodations. The number of medical students showed a decrease mainly because there was a smaller number of foreigners registered. The decrease also in Czechoslovakian medical students resulted from the saturation of Czechoslovakia with medical personnel.

The number of physicians in Czechoslovakia has almost doubled since the World War. There are now almost 12,000 practicing in Czechoslovakia; that is an average of one physician to about 1,200 of population. That the physicians can make a living can be explained only by the development of medical insurance, which, since the World War, has mobilized large sums of money for medical fees, without which the absorption of great numbers of new physicians in practice would have been impossible. But this system is responsible for a dangerous situation at present. Unemployment goes hand in hand with the loss of rights for benefits from social insurance, and consequently the number of prospective patients for insurance physicians has been reduced. If the economic depression and unemployment do not end soon, the physicians will feel sharply the drop in their income. This will be true especially of recent graduates.

Medical treatment for the unemployed is a problem; the profession has assumed this task willingly, and special committees on which physicians are serving, generally free of charge, are being organized all over the country for emergency medical relief for the unemployed.

Public hospitals continue to be in good condition with regard to equipment and finances. Special hospitals have been hit hard by the depression, especially tuberculosis sanatoriums, preventoriums and convalescent homes, which are chiefly maintained by insurance societies. Most of them suffer from lack of patients.

The famous watering places of Bohemia (Karlsbad, Marienbad, Franzensbad) are undergoing a profound change. These places have been built up mainly by catering to foreigners. The depression has decreased the number who can afford to live at the spas. Radical changes in the management of the watering places have come about. The fees paid to the physicians have been reduced and living conditions are on a lower standard than in previous years. Living at the watering places of Bohemia is much cheaper than before the depression and as a result they are frequented to a larger extent by the Czechoslovakian population than before. It is estimated that the cost of a sojourn at these spas has been reduced even for foreigners by 50 per cent during the last two years.

In 1932 there were economies in public finances but no material reductions in public health activities. The dispensary service dealing with infant welfare, tuberculosis and venereal diseases did not suffer much reduction. These institutions have been supported from reserves accumulated in the time of prosperity together with a large grant from the Central Invalidity Insurance Agency. The depression has, nevertheless, affected the work in these institutions. The cause is not so much material as psychologic. The personnel realized the uncertainty of their future and the best workers began to look for positions of better stability and tenure. Psychologic uneasiness of the personnel led undoubtedly to a certain stagnation.

Czechoslovakia has survived the past year, the most difficult one in its history, without any serious damage to the health of the people.

Leaflets Placed in Periodicals

The State Institute of Public Hygiene of Prague gives out, fifteen times a year, a leaflet describing some new method which the institute is using in public health work. These leaflets are edited by the scientific directors of the institute and represent the opinion of the most qualified persons of the country. They are numbered and issued so that they can be assembled into a volume later on. The institute has a contract with Czechoslovakian medical periodicals to the effect that the leaflets shall be laid in the copies of the periodicals and sent with them to every subscriber. This practice has become popular with the medical profession because physicians find in the leaflets practical information on many topics. The leaflets deal mainly with vaccination against diphtheria, the Calmette vaccine, and the use of convalescent serum against measles. They contain also information concerning epidemics and vital statistics. These leaflets are educational for the practitioners and they are inexpensive.

Cooperative Studies on Rural Health Problems

The Public Health Service is developing a close collaboration with the health section of the League of Nations. The cooperative activities concern chiefly the province of Slovakia, which is quite backward, as compared with the western part of the state, in developing sanitation. As the country is agricultural, rural problems are in the forefront. The program is mainly educational. The main assistance rendered by the League of Nations is placing at the disposal of Czechoslovakia a number of experts who will function through the State Institute of Public Hygiene in Prague. The prominent rôle will be taken by Dr. Andrej Štampar of Yugoslavia, who has a wide reputation as a result of his work in improving rural hygiene.

The League of Nations is cooperating with Czechoslovakia in certain studies resulting from the conference held in Geneva in 1931. Three such studies are at present being conducted in Czechoslovakia. One of them is concerned with financing public health services in the rural areas; the second deals with typhoid in rural areas. Two rural districts have been selected that are especially fitted for this study. Some interesting facts have been brought out concerning the rôle of typhoid carriers and the methods for their detection. It appears that water and milk, which are chiefly responsible for the outbreaks of

typhoid in large cities, are not important factors in rural areas, where carriers and flies are the main problems. New light has been thrown on the interpretation of the Widal test among the carriers of typhoid. The third study concerns the sanitation of milk and its rôle in the nutrition of the rural population. It is apparent that the small farmers give much more care to milking and the preservation of milk than the large producers, who become careless and try to get as much profit from their business as possible without considering sanitation. It was found that tuberculosis among cows on small farms was only about half of that on large farms. Control over the large producers has become difficult because the milk market is not well organized. Milk is being sent long distances to cities. The cooperative studies being carried out simultaneously in Hungary, Poland, Czechoslovakia, Spain and parts of France will be used as material for the second rural hygiene conference, which is being prepared by the health section of the League of Nations.

THE NETHERLANDS

(From Our Regular Correspondent)

Jan. 17, 1933.

Rat Plague on Ships at Amsterdam

Mr. A. Vedder publishes in the *Nederlandsch tijdschrift voor geneeskunde* a study on plague. Between 1910 and 1930, plague-infected rats were found eight times on ships in the port of Amsterdam, the last discovery being in 1920. In 1932, renewed manifestations of rat plague developed on a ship coming from the Plata River. The author, who examined the rats sent to the university laboratory, emphasized the resemblance of the plague bacillus to the bacillus of pseudotuberculosis rodentium. The two have the same morphologic characteristics, the same typical forms of colonies, and the same biochemical reactions, and in inoculations into the guinea-pig only the Otten test made differentiation possible.

Like Bacillus pseudotuberculosis-rodentium, the plague bacillus presents three different types of colonies. In the former there is an evident relation between the degree of virulence and the form of the colonies. The same is probably true of the plague bacillus. The virulent type (type D) is not found among the strains of plague bacillus discovered in the Netherlands, including the type isolated in the case of the ship mentioned. This no doubt explains why, in the beginning of the tests, the guinea-pigs appeared so slightly susceptible to plague infection.

Decline in Tuberculosis Mortality

In 1931 the mortality from tuberculosis had dropped in the Netherlands to 7.31 per hundred thousand inhabitants. The notification of tuberculosis is not compulsory in this country, but the highly developed system of dispensaries and of visiting nurses makes it possible to exercise close supervision over the population. Between 1921 and 1930 the mortality decreased by 50 per cent in cities of more than 100,000 inhabitants and by 35 per cent in the communes of less than 5,000 inhabitants. In females, the mortality is notably higher in the rural districts than in the cities. The reasons assigned are that poor hygienic conditions have a greater influence on the life of women than on men, and that pregnancies are more frequent in the rural districts than in the cities. These observations will tend to intensify the effort to reduce the morbidity from tuberculosis in the rural sections to a percentage at least as low as that in the cities.

Report of the Encephalitis Commission

The council on hygiene has just published a report on postvaccinal encephalitis that brings the whole question up to date. As to the nature of the relation between vaccination and encephalitis, "the most plausible assumption is that a latent encephalitigenic virus may become active under the influence of vaccination, or that some organism already present becomes virulent as the result of the lowered resistance of the vaccinated person."

Mutual Sick Benefit Associations in the Netherlands

Dr. J. A. Berger, in a comprehensive article on mutual sick benefit associations in the Netherlands, gives an outline of the history of medical service up to 1892 and 1908 and then devotes several chapters to questions that have been in the forefront since 1908. One gets from the book an impression that the physicians have done all that they could to improve the mutual sick benefit associations. In chapter III, the question of providing medical care for patients by some form of insurance is discussed. In chapter IV, the author gives an account of the struggle for leadership in the mutual associations. He discusses also the decree of 1912 and the reaction produced throughout the country. He considers the question of the free choice of physicians. He would prefer not to see the free choice of physicians upheld in the law pertaining to mutual sick benefit associations. The author gives his opinion on the province of the mutual association and on government inspection.

International Society of Medical Hydrology

At the congress of the International Society of Medical Hydrology, held recently in Amsterdam, Dr. Van Breemen spoke on physical therapy. In the Netherlands, no course of instruction in physical therapy, balneology or climatotherapy is given at any university. He said that physical therapy is not accorded the practical and scientific importance that it deserves. The congress held a joint session with the medical society for combating rheumatism. The topics discussed were "Cold as a Cause of Disease" and "The Rôle of Seaside Treatment." Dr. Carl Haberlin pointed out the functional changes brought about by a visit to the seaside. Muscular strength and respiratory capacity are increased; the percentage of hemoglobin in the blood rises; the metabolism, the oxygen intake and the retention of calcium and phosphorus are all increased. Dr. Gorter recounted his experimental research on the influence of a stay at the seaside.

Withdrawal Treatment for Opium Addicts

Dr. F. J. H. Noordhoek Hegt presented a paper on the Modinos withdrawal treatment as applied to opium smokers. This method consists in venesection done several times and injection of the blood serum subcutaneously, with gradual diminution, at the same time, of the dose of opium. When the patient has been without opium for several days, he is subjected to the smoking test. This is regarded as positive when, after having smoked a pipe of opium, the patient is seized with vomiting, a cough due to irritation, and other symptoms. The author gave some personal observations with regard to this reaction. The better results secured by Kwa and Tan, who also employed this method, may be attributed to the closer contact that they had with the patients rather than to their better application of the method itself.

Types of Pneumococcus in the Dutch East Indies

Dr. Kirchner has an article in the *Geneeskundig tijdschrift voor Nederlandsch-Indie*, in which he gives an account of his research on the types of pneumococcus occurring in the Dutch East Indies. He found that about two thirds of all cases are caused by types I and II (42 per cent, type I; 25 per cent, type II). The remaining cases are caused by type IV. He did not find type III in pneumonia cases, but he found it in a few patients with fever without pneumonia. The author observed that pneumonia with types I and II is generally more grave than pneumonia with type IV. A number of coolies were vaccinated with a polyvalent pneumococcal vaccine. The results were encouraging but did not justify any definitive conclusion as to the value of the method.

Marriages

CLINTON E. MERSHON, Adel, Iowa, to Miss Constance Vivian Hull of Berwyn, Ill., in Rosendale, Wis., Dec. 24, 1932.

LLEWELLYN W. LORD to Mrs. Margaret Ward Jones, both of Baltimore, at Greenwich, Conn., January 28.

JAMES L. GALLAGHER, Buffalo, to Miss Marie Veronica Butler at Balboa Heights, C. Z., February 21.

WILLARD M. MEININGER, San Francisco, to Miss Theresa Mae Ruder of Kulm, N. D., January 20.

HAROLD E. MILLER, New Smyrna, Fla., to Miss Margaret Easterling of Savannah, Ga., February 9.

NOBLE MURRAY EBERHART, Chicago, to Mrs. Florence Ingram of Westmont, Ill., February 7.

DAVID LEMUEL HARRELL, JR., Suffolk, Va., to Miss Katie Mae Moore of Lynchburg, January 9.

PETER P. DOERING to Miss Marjorie Dorothy Sandquist, both of Geneseo, Ill., February 10.

RAYMOND HASBROUCK SHRADY to Miss Janet Seed, both of New York, February 18.

OLIVER E. VAN ALYEA, Chicago, to Miss Elizabeth Cameron of Milwaukee, February 11.

Deaths

Walter Ellis Sistrunk, Jr. ⊕ Dallas, Texas; Medical Department of Tulane University of Louisiana, New Orleans, 1906; member of the American Surgical Association, Southern Surgical Association and the Society of Clinical Surgery; fellow of the American College of Surgeons; formerly professor of clinical surgery, Baylor University College of Medicine; in 1911 entered the Mayo Clinic, Rochester, Minn., as an assistant in pathology, in 1912 was appointed first assistant in surgery, in 1914 assistant surgeon, and in 1916 attending surgeon and head of a section of general surgery; at one time associate professor of surgery of the University of Minnesota Graduate School of Medicine, Rochester, Minn.; assistant professor of operative gynecology of the cadaver, New Orleans Polyclinic, 1906-1909; surgeon to the Parkland Hospital; aged 52; was found dead, March 6, of poison, in a hotel at New Orleans.

George David Stewart ⊕ New York; Bellevue Hospital Medical College, New York, 1889; member of the House of Delegates of the American Medical Association in 1919; professor of surgery, University and Bellevue Hospital Medical College; member of the American Surgical Association and the Associated Anesthetists of the United States and Canada; fellow and past president of the American College of Surgeons; past president of the New York Academy of Medicine; formerly member of the State Board of Social Welfare; president of the medical board and visiting surgeon to St. Vincent's Hospital; consulting surgeon to the Englewood (N. J.) Hospital, St. Mary's Hospital, Orange, N. J., United Hospital, Port Chester, South Side Hospital, Bayshore, St. Joseph's Hospital, Yonkers, and the Bellevue Hospital, New York; aged 70; died, March 9, of uremia.

David Bushrod James, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1896; assistant in pathology and histology in 1898, demonstrator of gynecology, pathology and microscopy, 1899, associate professor of gynecology in 1905 and since 1910 professor and head of the department of gynecology at his alma mater; fellow of the American College of Surgeons; gynecologist in charge of the Hahnemann Dispensary; consulting gynecologist to the Allentown (Pa.) State Hospital and the William McKinley Memorial Hospital, Trenton, N. J.; aged 58; died, January 19, of pulmonary edema and heart disease.

Franklin Edward Murphy ⊕ Kansas City, Mo.; University of Pennsylvania School of Medicine, Philadelphia, 1893; professor of clinical medicine, University of Kansas School of Medicine; fellow of the American College of Physicians; formerly member of the state board of health; past president of the Jackson County Medical Society; on the staffs of the Bell Memorial, Research, Wesley and General hospitals; aged 61; died, February 20, of heart disease.

Albert Draper Whiting ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1892; associate professor of surgery, Graduate School of Medicine of the University of Pennsylvania; aged 63; on the staffs of the Southern Home for Destitute Children and Home for the Instruction of the Deaf, and the Lankenau Hospital, where he died, February 17, of sarcoma of the right shoulder.

Christian Frederick Pfingsten ⊕ St. Louis; St. Louis College of Physicians and Surgeons, 1898; associate professor of otolaryngology, St. Louis University School of Medicine; member of the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons; otolaryngologist to St. John's Hospital; aged 57; died, Nov. 20, 1932, of chronic myocarditis.

Howard Pursell, Bristol, Pa.; Medical Department of the University of the City of New York, 1867; member of the Medical Society of the State of Pennsylvania; also a druggist; past president of the Bucks County Medical Society; Civil War veteran; for twenty years president of the board of health of Bristol; aged 85; died, January 13, of heart disease.

Isaac Jarrett Jones, Little Rock, Ark.; Arkansas Industrial University Medical Department, Little Rock, 1889; formerly professor of bacteriology, University of Arkansas School of Medicine; served during the World War; aged 68; died, Dec. 28, 1932, in the Baptist State Hospital, of burns received when his clothing caught fire from an open gas grate.

William Loomis Griswold ⊕ Greenwich, Conn.; College of Physicians and Surgeons in the City of New York, Medical Department of Columbia College, New York, 1885; member of the board of education; formerly health officer; at one time on the staff of the Greenwich Hospital; aged 72; died, February 24, of carcinoma of the sigmoid.

Frederick C. Gessner ⊕ Milwaukee; Wisconsin College of Physicians and Surgeons, Milwaukee, 1901; on the staff of the Oconomowoc (Wis.) Health Resort; aged 61; died suddenly, February 11, in Rochester, Minn., of bronchopneumonia, following an operation for carcinoma of the stomach.

Edward Quarles, Island Creek, Md.; University of Maryland School of Medicine, Baltimore, 1899; member of the Medical and Chirurgical Faculty of Maryland; on the staff of the Calvert County Hospital, Prince Frederick; aged 55; was killed, Nov. 1, 1932, when struck by an automobile.

Harry Kirke Read ⊕ Houston, Texas; University of Minnesota Medical School, Minneapolis, 1899; past president of the Texas Public Health Association; supervisor of hygiene in the city schools of Houston; for four years member of the school board; aged 68; died, Dec. 8, 1932, of uremia.

William Luther Hartsell ⊕ Warren, Ark.; Dallas (Texas) Medical College, 1903; formerly secretary of the Bradley County Medical Society; aged 60; died, February 4, in a hospital at Little Rock, of empyema of the gallbladder, acute appendicitis, myocarditis and pulmonary edema.

Rhodulphus H. Rice ⊕ Milwaukee; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1897; member of the American Academy of Ophthalmology and Oto-Laryngology; aged 63; died, February 8, following an operation for mastoiditis.

Michael John Dillon, Jr. ⊕ Springfield, Mass.; Baltimore Medical College, 1908; member of the board of health; fellow of the American College of Surgeons; on the staffs of the Health Department Hospital and the Mercy Hospital; aged 49; died, February 11, of angina pectoris.

Sam Houston Adams, Slaton, Texas; University of Louisville (Ky.) School of Medicine, 1909; member of the State Medical Association of Texas; aged 57; died recently, in a local hospital, of wounds received when he was shot by the father of a patient.

James Franklin Blair ⊕ Bozeman, Mont.; University of Vermont College of Medicine, Burlington, 1892; fellow of the American College of Surgeons; on the staff of the Bozeman Deaconess Hospital; aged 64; died, February 6, of cerebral hemorrhage.

Michael Henry Cleary, Galena, Ill.; Pulte Medical College, Homeopathic, Cincinnati, 1878; also a lawyer; formerly member of the state legislature; member of the board of education; aged 79; died, February 2, of carcinoma of the stomach.

Neldon Mason Weigle, St. Louis; State University of Iowa College of Medicine, Iowa City, 1932; intern at St. Louis City Hospital; aged 25; died, January 7, of acute glomerular nephritis, acute maxillary sinusitis and otitis media.

Robert Frederick Hutcheson, Cedarhurst, N. Y.; Bellevue Hospital Medical College, New York, 1893; member of the Medical Society of the State of New York; for many years health officer of Cedarhurst; aged 61; died, February 18.

Henry Clay Beckett, Chase City, Va.; Vanderbilt University School of Medicine, Nashville, Tenn., 1884; University

of Nashville (Tenn.) Medical Department, 1885; member of the Medical Society of Virginia; aged 81; died, January 11.

Daniel Francis Sullivan, West Hartford, Conn.; Niagara University Medical Department, 1891; formerly member of the board of health of Hartford; for many years on the staff of St. Francis Hospital, Hartford; aged 65; died, February 5.

Lyman Ross Orton, Wilmington, Mass.; Boston University School of Medicine, 1927; member of the Massachusetts Medical Society; school physician and agent of the board of health; aged 33; died, January 13, of heart disease.

Clarence Jennings Miner, Brooklyn; University of Minnesota Medical School, Minneapolis, 1891; served during the World War; aged 68; died, February 20, in St. Luke's Hospital, New York, of carcinoma of the stomach.

John Joseph Ryle, Stamford, Conn.; University of Buffalo (N. Y.) School of Medicine, 1897; chairman of the board of education; formerly health officer; aged 60; died, February 15, in the Stamford Hospital, of heart disease.

Frank Harten Pratten, London, Ont., Canada; University of Toronto Faculty of Medicine, 1912; fellow of the American College of Physicians; superintendent of the Queen Alexandra Sanatorium; aged 46; died, Dec. 10, 1932.

Mark Spaulding Bradley ⊕ Hartford, Conn.; College of Physicians and Surgeons in the City of New York, Medical Department of Columbia University, New York, 1892; aged 65; died, February 5, of heart disease.

Alexander Leon Brown, Chicago; University of Illinois College of Medicine, Chicago, 1930; aged 26; died, February 22, of acute cholecystitis with stones in the common duct and postoperative intestinal obstruction.

James Wattie Fennell, Mount Hope, Ala.; Birmingham Medical College, 1901; member of the Medical Association of the State of Alabama; aged 58; died, February 17, of chronic nephritis and myocarditis.

Charles Sylvester Bentley, Plattsburg, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1896; veteran of the Spanish-American War; aged 61; died, January 29, of lymphoblastoma.

James Edward Pennington, Esom Hill, Ga.; University of Georgia Medical Department, Augusta, 1888; member of the Medical Association of Georgia; aged 73; died, February 13, in a hospital at Cedartown.

Carroll C. Conant, Weiser, Idaho; Detroit College of Medicine, 1907; served during the World War; aged 46; died, February 17, in the Letterman General Hospital, San Francisco, of pulmonary edema.

William H. Craig, Upland, Calif.; College of Physicians and Surgeons, Baltimore, 1886; member of the California Medical Association; aged 73; died, January 9, in Ontario, of cerebral hemorrhage.

William John Scanlan ⊕ Shenandoah, Pa.; Medico-Chirurgical College of Philadelphia, 1899; president of the Schuylkill County Medical Society; aged 63; died, February 3, of coronary thrombosis.

Ernest Albert LeBien ⊕ McHenry, N. D.; Washington University School of Medicine, St. Louis, 1904; county health officer; aged 55; died, February 5, in a hospital at Valley City, of pneumonia.

Fred Albert Keppler, Dubuque, Iowa; Marquette University School of Medicine, Milwaukee, 1929; member of the Iowa State Medical Society; aged 30; died, February 2, of a ruptured appendix.

Arthur Edmund Clendenan, Edmonton, Alta., Canada; University of Toronto Faculty of Medicine, 1891; first deputy minister of health of Alberta; aged 64; died, January 24, of pneumonia.

Clifford C. Leck ⊕ Austin, Minn.; Homeopathic Medical Department of the University of Minnesota, Minneapolis, 1900; aged 59; died, January 26, at Excelsior Springs, Mo., of angina pectoris.

George K. Beyer, Lorain, Ohio; Cleveland Medical College, Homeopathic, 1897; member of the Ohio State Medical Association; aged 67; was found dead, February 20, of heart disease.

Robert C. Schroeder, St. Louis; Missouri Medical College, St. Louis, 1884; for twenty years chief pharmacist at St. Luke's Hospital; aged 73; died, January 31, of pneumonia.

George Harlan Johnson, Quanah, Texas (licensed, in Texas, by the State Board of Medical Examiners, under the Act of 1907); Civil War Veteran; aged 89; died, January 26.

Charles E. Thomson ⊕ Scranton, Pa.; Bellevue Hospital Medical College, New York, 1891; medical superintendent of the Scranton Private Hospital; aged 73; died, February 13.

Joseph Andrew Parks ⊕ San Diego, Calif.; Vanderbilt University School of Medicine, Nashville, Tenn., 1898; aged 60; died, February 8, in La Mesa, of cerebral embolism.

DuGrand D. Erway, Syracuse, N. Y.; Syracuse University College of Medicine, 1883; aged 77; died, February 19, of carcinoma of the mesentery and chronic myocarditis.

Benjamin Franklin Scholl ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1886; aged 72; died suddenly, January 31, of cerebral hemorrhage and arteriosclerosis.

Merritt Wright Barnum ⊕ Ossining, N. Y.; University of Jena, Germany, 1891; on the staff of the Ossining Hospital; aged 65; died suddenly, February 24, of heart disease.

Charles H. L. Souder, Rockwell City, Iowa; Kentucky School of Medicine, Louisville, 1881; Chicago Homeopathic Medical College, 1894; aged 79; died, February 10.

Charles Mason Smith ⊕ Fredericksburg, Va.; University of Virginia Department of Medicine, Charlottesville, 1907; aged 50; died, January 2, of a gunshot wound.

Ferdinand Mitchell Perrow, Lynchburg, Va.; University of Pennsylvania School of Medicine, Philadelphia, 1905; aged 58; died, January 20, of chronic nephritis.

Henry Esta Whitacre ⊕ Tularosa, N. M.; St. Louis College of Physicians and Surgeons, 1909; county health officer; aged 46; died, Dec. 12, 1932, of nephritis.

John Edwin Mahoney ⊕ Enid, Okla.; Jefferson Medical College of Philadelphia, 1906; aged 53; died, February 7, in a local hospital, of cerebral hemorrhage.

David Chambers Peters, Zanesville, Ohio; Medical College of Ohio, Cincinnati, 1866; aged 90; died, Dec. 28, 1932, in the Bethesda Hospital, of pneumonia.

Cornelius J. Mahoney ⊕ Providence, R. I.; Harvard University Medical School, Boston, 1898; aged 57; died, January 3, of cerebral thrombosis and hemiplegia.

Accie Ely Mathews ⊕ Franklin, Ind.; Woman's Medical School of Northwestern University, Chicago, 1893; aged 71; died, February 12, of heart disease.

Joseph Charles Gandier, Clinton, Ont., Canada; University of Toronto Faculty of Medicine, 1909; aged 51; died suddenly, January 21, of heart disease.

John Smidt Preissler, Camp Taylor, Ky.; Louisville Medical College, 1873; Hospital College of Medicine, Louisville, 1875; aged 81; died, February 8.

Henry H. Sutherland, Los Angeles; State University of Iowa College of Medicine, Iowa City, 1885; aged 79; died, January 16, of mitral insufficiency.

John Wesley Turner, Catlin, Ill.; Willamette University Medical Department, Salem, 1872; aged 93; died, Dec. 18, 1932, of basal cell carcinoma.

Milton Granville Sloan ⊕ Indianola, Iowa; Rush Medical College, Chicago, 1873; aged 84; died, Dec. 28, 1932, of influenza and bronchopneumonia.

James W. Pruett, Weogufka, Ala.; Medical College of Alabama, Mobile, 1892; aged 65; died, January 31, of carcinoma of the pancreas.

Samuel Perley Strickland, Waltham, Mass.; Dartmouth Medical School, Hanover, N. H., 1891; aged 62; died, January 15, of septicemia.

Charles L. Bellamy ⊕ Cranfills Gap, Texas; Atlanta Medical College, 1895; aged 58; died, Dec. 4, 1932, of myocarditis and influenza.

Frank Albert Pruett, Phoenix, Ariz.; Northwestern Medical College, St. Joseph, Mo., 1894; aged 60; died, January 15, of lobar pneumonia.

Harry Finkelstein ⊕ Boston; Harvard University Medical School, Boston, 1904; aged 52; died, February 2, of coronary thrombosis.

James Palmer McGill, Chicago; Homeopathic Hospital College, Cleveland, 1884; aged 76; died, February 9, of pneumonia.

Abraham Romm, Omaha; Baltimore University School of Medicine, 1902; aged 58; died suddenly, February 4, of heart disease.

S. K. Owens, Montgomery, W. Va.; College of Physicians and Surgeons, Baltimore, 1891; aged 66; died, Dec. 3, 1932.

Joseph Wagner, Mount Vernon, Ohio (licensed, Ohio, 1896); aged 90; died, Dec. 31, 1932, of carcinoma.

Correspondence

ACNE VULGARIS FOLLOWING THE TAKING OF YEAST

To the Editor:—Despite the marvelous accounts of the value of yeast, written by the advertising agents of the yeast companies and supported by the foreign legion of physicians, the relative percentage of acne cases among dermatoses has not decreased. In addition, at least half of the patients suffering from acne have previously tried yeast without any benefits to themselves. But that the administration of yeast may actually induce the appearance of acne vulgaris seems to have escaped attention. The report of the following three cases of acne is of some passing interest:

CASE 1.—A white man, aged 26, had suffered from a mild acne between the ages of 16 and 20 but had been entirely well for six years. Because of some indigestion he decided to take yeast, and after he had done so for three weeks there was no change in his gastro-intestinal condition and, in addition, there had developed a severe pustular acne vulgaris of the forehead and cheeks; this spontaneously disappeared two weeks after the yeast was discontinued and has not recurred for three years.

CASE 2.—A white youth, aged 21, twice developed an acne vulgaris within three weeks after the administration of yeast was begun. The condition continued with increasing severity during the taking of the preparation and disappeared spontaneously within two weeks of the time that the yeast was discontinued.

CASE 3.—This was in all particulars the same as in the second case reported, except that the patient was a girl.

In all three of these cases the patients were well known to me and the observations noted are correct.

H. H. HAZEN, M.D., Washington, D. C.

CAPILLARY CHANGES IN PERNICIOUS ANEMIA

To the Editor.—In a typical, well defined case of pernicious anemia, one sees at a glance the oversized erythrocytes, which are present even during remissions of the disease. During a relapse, in addition, megaloblasts are perceived. Piney believes that these large cells are representatives of certain intravascular cells of the embryonal liver persisting in this disease to adult life. Parenthetically, some children exhibit achylia, attributed by some observers to toxemias following infectious diseases. I believe that macrocytes should be looked for in these conditions. If Piney is right, pernicious anemia is present from intra-uterine life until middle age without symptoms. These large cells have a diameter of 15 to 18 microns. According to Gray, the usual diameter of the capillaries is 8 microns. They are smallest in the brain and intestine and largest in the bones and skin: 20 microns. It has been noted that improvement is last manifested in the peripheral circulation. Is there a short circuit between the bone marrow and skin where the big cells, following the law of least resistance, because they cannot enter the small capillaries, crowd the peripheral circulation and lead one to have an erroneous idea of the blood picture as a whole? As to the hemolysis, there is an increase in the fragility of the cells. True, they are elastic and so are the capillaries. This elasticity decreases about the time the pernicious anemia develops and it is quite conceivable that the attrition caused by the disparity between the size of the cell and the caliber of the capillaries, together with the added fragility of the cell wall, may cause it to rupture with escape of the hemoglobin into the plasma. I am aware that the hemolysis has been attributed to an increase in the permeability of the cell wall. This would simply show that the increased tension due to the disparity caused the contents to be extruded and rendered more vulnerable the cell wall. Have any studies been made of the caliber of capillaries in pernicious anemia? Perhaps if the macrocytic erythrocytes are present from birth the capillaries would possibly enlarge to accommodate them.

THOMAS I. O'DRAIN, M.D., Philadelphia.

STREPTOTRICHOSIS

To the Editor.—In THE JOURNAL, January 28, is a communication from Dr. Robert N. Nye of Boston in which he takes certain exceptions to the article on streptotrichosis by Dr. Mezei and myself (THE JOURNAL, Dec. 10, 1932). Some of his criticisms are well founded; others are characteristic of the recent confusion on the subject. His first contention, that fungi are widely distributed in nature and are often harmless saprophytes, no one will deny. This is true also of some of the higher bacteria. That the medical literature abounds with reports of cases of diseases in which the alleged primary etiologic factor is in many instances probably a harmless saprophyte and in others a secondary invader is hardly to the point in his discussion of our case. His comment that "the case is most interesting and its report certainly warranted" and our own close study of the clinical course of the disease picture acquit us of any suspicion along these lines.

Our study of the literature, on the lack of which Dr. Nye chides us, has convinced us that there is a symptom complex which deserves clinical recognition and which appears to be produced by a definite and specific etiologic factor, of which our case seems to be a classic example. This disease entity of late years has been called, chiefly by the clinicians, by the single generic term streptotrichosis (or streptothricosis), and common usage has seemed to stamp this as the correct nomenclature. A study of the literature as regards the botanic classification and bacteriologic characteristics, however, does not disclose the same unanimity of opinion. To cite Dr. Nye's own authority on the subject, Castellani (*Arch. Dermat. & Syph.* **16**:383 [Oct.] 1927) states:

> Until recently all the species of this order (Nocardia Toni and Trevisan, 1889) were considered to belong to one genus, i. e., Nocardia Toni and Trevisan, 1889, but Pinoy has made a subdivision, separating certain species into another genus, which he calls Cohnistreptothrix Pinoy, 1911. In doing this, he points out that the original discoverers of actinomycosis, namely, Harz and Bollinger in 1877 and Rivolta in 1878, thought that they were dealing with one organism, but when they attempted to make cultures, it became apparent that more than one organism was implicated. Thus, Bostrom isolated a parasite which grew well aerobically, produced a dry membrane on the surface of broth and was capable of growth at 20 C. on gelatin, but which grew better on potato at 37 C. and formed chains of arthrospores.
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> Wolf and Israel, on the other hand, obtained a parasite which grew only anaerobically and was not capable of growth at ordinary European air temperature. In broth it formed small granules or scales which fell to the bottom of the tube. These cultures often contained clublike forms, and the branching filaments broke up into bacillar or coccal-like forms. Inoculation of gelatin cultures into the peritoneal cavity of guinea-pigs produces actinomycosis. This form is commonly called Nocardia israeli (Kruse, 1896). Wright maintains that this organism is the true cause of actinomycosis and that Nocardia bovis is merely a contamination, but this is not generally accepted.
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> There are, however, two distinct organisms which can cause actinomycosis in man and oxen, viz., Nocardia bovis (Harz, 1877) and Nocardia israeli (Kruse, 1896), but the difference between them is considerable, and therefore Pinoy has separated the latter and its allies from the former and has founded the new genus Cohnistreptothrix Pinoy, 1911.

In a clinical discussion of fungal diseases the same author in the January, 1928, issue of the *Archives* says: "Bronchonocardiasis is the modern term used to denote all bronchial and bronchopulmonary conditions due to fungi of the genus Nocardia Toni and Trevisan, and the genus Cohnistreptothrix Pinoy which were previously more commonly known as Streptothrix, Actinomycosis, Discomyces and Oospora." He divides the condition into two groups, one containing fungal granules in the sputum, the actinomycosis bronchialis or pulmonalis, and the other producing no fungal granules, the pseudo-actinomycosis. He also cites several cases of bronchosporotrichosis with the production of yeastlike bodies in the sputum.

Far be it from us to clarify all these confusing statements, on which the best authorities are not in agreement. We certainly do not deny that actinomycosis is a distinct entity and is produced by a specific infectious agent that exists in the lesions and in the pus in the form of small whitish or yellowish granules the essential element of which is a branching filamentous organism. Between this distinct entity on the one hand, however, and infections due to the hyphomycetes or lower fungi, of which the sporothrix is an example, there is again a definite clinical entity caused by a micro-organism which, briefly, is characterized by branching threadlike forms, which produce fine conidia or sporelike reproductive elements. Because of the many characteristics it has in common with both its higher and its lower neighbors, and because of its ability to accentuate some of these characteristics and depress others, it is doubtless confused with its neighbors and given names resembling them. We therefore again contend that, when a clinical picture such as we have described is encountered, in which the causative organism is established to be a slender branching filament lacking the tubular structures with the double countoured walls, protoplasmic content and transverse septums of the lower hyphomycetes, and yet able to produce sporelike reproductive elements or conidia, the term streptotrichosis be designated. Its other bacteriologic characteristics described in our article, while we believe they are correct, will doubtless be more definitely established after further work along these lines.

MAURICE KOVNAT, M.D., Staten Island, N. Y.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CHRONIC EDEMA OF ANKLES

To the Editor:—An underweight girl, aged 12, has had edema of the ankles for two years. This is of the pitting type and is slightly painful. There are no other subjective symptoms, except asthma of three years' duration, for which the patient uses a nasal spray (patented) containing a small quantity of cocaine. Examination shows the heart, liver and kidneys normal. Biopsy and family history are negative for Milroy's disease. The stool contains Blastocystis hominis, which is apparently not causing irritation. The case has been considered one of endemic nutritional edema because the patient is not a vigorous eater; however, larger quantities of protein food have made no improvement. No estimate of amount of blood serum albumin has been made. What suggestion have you as to possible cause and treatment? Please omit name.

M.D., Texas.

ANSWER.—Edema of the extremities may result from systemic disease or from a disease process localized to the legs themselves. The commonest systemic diseases causing edema are, of course, those of the heart, kidneys or liver. These being normal, other systemic conditions to be thought of include certain nutritional abnormalities, Milroy's disease, hypothyroidism, chlorosis and other chronic anemias, angioneurotic edema, Meige's disease and certain parasitic infections.

It is possible that the patient has a nutritional edema; but the lack of response to a high protein diet suggests the need for consideration of other causes and additions to treatment. Foods rich in vitamin B might be added to the diet. There is no single pathognomonic feature about nutritional edema, and the diagnosis must be made by exclusion of other causes and from the results of treatment. Nutritional edema may occur in several deficiency states: scurvy, beriberi, and the inanition resulting from the ingestion of insufficient protein and an excess of salt and fluid. The former two deficiency diseases are associated with a variety of signs and symptoms aside from edema.

A chronic edema such as this does not suggest the angioneurotic type, and the latter is probably not caused by cocaine, though the spray might be stopped to prove this point. Milroy's disease presents a persistent hereditary edema of the legs characterized by rather sharp demarcation of the edema, frequently periodic fever and gastric upsets, and the patient generally gives a history of its occurrence in other members of his family. But there are cases presenting all the features of Milroy's disease in which a single member of the family is involved. In Meige's disease a peculiar trophedema is present, the cause of which is unknown.

Nephritis may occur without albuminuria, but in such cases lesions in the cardiovascular system are usually found, such as hypertension, retinal changes and cardiac enlargement. Were the edema due to an Ebstein type of nephrosis there should be rather marked albuminuria. In such cases the serum-globulin ratio is often inverted. A basal metabolic rate would exclude hypothyroidism as the basis for the swelling. Edema without albuminuria is a feature of certain chronic anemias, one of which is chlorosis, in which the patient is usually anemic and the blood studies show a greater drop in hemoglobin than in the red blood cells. Edema without albuminuria may occur with certain parasitic infections in which eosinophilia is usually present. Blastocystis hominis is considered nonpathogenic.

The most common forms of edema from localized tissue disease arise (1) from lymphangitis, (2) with localized obesity, and (3) from venous stasis. The edema of lymphangitis is usually a brawny one, is relatively nonpitting, and is usually preceded by or associated with definite signs of cellulitis. A local deposition of fat about the ankles is frequently seen in young girls and in the early stages it may be associated with some pitting, edema resulting from a combination of venous stasis and fat deposition. Frequently familial, it may later develop into a lipodystrophy about the ankles. Postural edema from venous stasis usually increases during the day and diminishes at night. Elevation of the legs for a few hours usually reduces it materially, in which case treatment by supporting bandages is indicated.

SYPHILIS AND TRANSFUSION

To the Editor:—Will you give me your opinion concerning the following: A man, aged 33, had a primary lesion, Feb. 5, 1930. A dark field examination was positive. The blood Wassermann reaction was 2 plus. The patient was promptly put on neoarsphenamine, two injections weekly of 0.6 Gm., for eight doses. Then he was given two injections of bismuth salicylate, 4 grains (0.26 Gm.) each, and four of mercuric salicylate, 2 grains (0.13 Gm.), each. The Wassermann reaction after this course was three plus. No rest period was permitted and the patient received, within the following two years, thirty-two injections of neoarsphenamine, each of 0.6 Gm.; fifty-two of mercuric salicylate, each injection 2 grains, and sixty-three injections of sodium bismuth thioglycollate. During this interval the patient showed no evidences of mercurialism or bismuthism. The blood Wassermann reaction at the end of these treatments was negative. At the same time at which this blood Wassermann test was taken, three samples of spinal fluid were tested. Two samples were sent to the local board of health laboratory and one was sent to a private laboratory, conducted by a reliable pathologist. The board of health laboratory reported a four plus Wassermann reaction for each of their specimens. The private pathologist reported a negative Kahn and a negative colloidal gold test. What is your opinion concerning this four plus spinal fluid test following all this intensive treatment which was crowded in the space of two years? The patient, clinically, gives absolutely negative results on examination. This patient is a member of the local fire department and the members of the fire department are frequently called on to give blood for transfusion at the local city hospital, which has a large general surgical service. I have advised this patient not to donate any blood, if ever called on, but to take the hospital doctor into confidence and notify him concerning his having had a syphilitic infection for which he received treatment. What is your opinion concerning any syphilitic patient who has been pronounced "cured" after receiving extreme intensive treatment so that he shows a negative blood or spinal fluid Wassermann reaction? Could he at any time offer his blood for transfusion without danger of carrying the infection to the recipient? Do you consider that this patient still has an active form of syphilis after all this treatment? I have advised further treatment, however, in view of his four plus spinal fluid. Please omit name.

M.D., New Jersey.

ANSWER.—A good deal of the confusion that has developed in this case results from inadequate examination of the spinal fluid by all the laboratories concerned. An accurate cell count and total protein or globulin estimation would have been helpful as a check on the positive Wassermann test. Moreover, the Wassermann test should have been reported quantitatively and not merely as positive or negative, for the quantitative gradient is sometimes of material aid in determining the validity of serologic observations. It is certainly possible for a patient to have an abnormal spinal fluid with a negative blood Wassermann reaction, even after the described intensive treatment, but it is not probable. The use of a Kahn precipitation test on the spinal fluid in place of the Wassermann test increases somewhat the difficulties of interpretation, though the record of the Kahn test in spinal fluid examination under controlled circumstances is good.

The obvious procedure in a case of this sort is a repetition of the spinal fluid examination with the sending of the fluid to a competent laboratory that will make a complete examina-

tion. It is, of course, necessary that the laboratory be given a specimen on which an adequate examination can be made; i. e., fresh, and free from blood and other contaminants.

With reference to the patient's eligibility for transfusion, the status of "cure" in syphilis is still too uncertain to make it advisable for any person who has ever had the disease to offer himself as a donor for transfusion except to a person known definitely to have syphilis at the time of the transfusion. Even in this case the technic should be such that there is no possibility of interchange of blood.

UNUSUAL BLEEDING

To the Editor:—A woman, aged 53, has had epistaxis all her life. She knows that her mother had one severe nosebleed. She has eight brothers and sisters who have never been so afflicted. Her past history is negative. There was one pregnancy at which she bled profusely. The menstrual flow lasts from five to seven days, with severe hemorrhage. Always during menstruation she has a nosebleed and also during the time between periods. She thinks that her nose bleeds more profusely during menstruation. She is now in her climacteric and has gone for six months without menstruating, but she still has nosebleeds. She weighs 200 pounds (90 Kg.). There are no visible changes in the nose and throat to account for his hemorrhage. Examination of the chest and abdomen is negative. The pulse rate is 90; the blood pressure 140 systolic, 85 diastolic. Examination of the urine is negative. The hemoglobin is 91 per cent; red blood cells number 4,580,000; white blood cells, 9,550; the coagulation time is two and one-half minutes. The differential count is normal. Please omit name.

M.D., Wisconsin.

ANSWER.—In spite of the relationship between the epistaxis and the menses, this is most likely not a case of vicarious menstruation. By the latter is meant extragenital bleeding from some part of the body occurring at regular intervals that correspond with the menstrual periods. Even before the menopause, the nosebleeds were not limited to the menstrual periods but occurred at other times as well. The increase that took place during menstruation may be attributed to the greater blood supply in the nasal mucosa which occurred at that time. The red blood count and the hemoglobin determinations are practically normal; hence the loss of blood has not been severe. In most cases like the one cited, a careful examination of the nose will reveal a local cause for the bleeding. If none can be found, it may be assumed that there is some disturbance in the permeability of the nasal capillaries. A similar condition may have been present in the uterine endometrium to account for the profuse menstrual periods, although here some disturbance in the endocrine glands may have been the responsible factor. Therapy is difficult to suggest because the etiology is unknown. The coagulation time is normal but the bleeding time and the platelet count should also be determined. Since the blood pressure is not abnormally high for a woman of 53, no treatment need be directed toward its reduction. The patient's weight is excessive but this most likely has no connection with the nosebleeds. In spite of this, an effort should be made to diminish this weight and build up the patient's general condition.

PEMPHIGUS FOLIACEUS

To the Editor:—A case of pemphigus has been brought to my attention in a woman, aged 60. From the universal involvement of the skin and the large, easily stripped scabs and flaccid blebs, a diagnosis of pemphigus foliaceus has been made. Constitutional and subjective symptoms are marked, with extreme itching, burning, anorexia, insomnia and moderate fever. The disease has been spreading for four months, involving the entire skin but not the mucous membranes. Solution of potassium arsenite (Fowler's solution) has not checked the disease and has been discontinued because of the development of edema of the feet. Quinine hydrochloride, from 4 to 6 grains (0.26 to 0.4 Gm.) has been given orally for about two weeks. A slight improvement in the back is shown, although whether this is spontaneous or due to quinine is unknown. Is quinine intravenously indicated? The usual soothing powders and powder bed have been used externally. I have heard indirectly of a case in Buffalo which has been cured by intravenous use of a drug of unknown identity from Germany. Do you know what drug this may be? Are any other drugs than arsenic and quinine of use? Is pemphigus foliaceus capable of remission? Have any estimates been made of the percentage of fatalities? The strength and weight and courage of the patient have been maintained. Is this of favorable omen? Please withhold name.

M.D., Massachusetts.

ANSWER.—If the case is one of pemphigus foliaceus, as seems probable from the description given, the prognosis is grave in any patient, but particularly in a person of 60. Recovery from this form of pemphigus is rare. The absence of lesions on the mucous membranes may be taken as a ray of hope, however. Quinine, by mouth or intravenously, is indicated, pushed to tolerance.

The Davis treatment, which includes the intramuscular administration every other day of a proprietary extract prepared from blood platelets and containing thromboplastic substances mixed with lactose, with iron cacodylate intravenously on the alternate days, may be tried. Mild foreign protein treatment, as injections intramuscularly of the patient's own blood, or injections of vaccines, may be of benefit.

Mercurochrome-220 soluble intravenously enough to cause a febrile reaction has been known to give benefit in some cases of pemphigus but is strenuous treatment and must be given with great caution to a patient of this age. The same caution applies to the use of arsphenamine or its modifications.

High rectal lavage continued over a long period has been credited with recoveries from ordinary chronic pemphigus.

The continuous bath or long and frequently repeated baths are often beneficial, keeping down the odor and soothing the patient. The length and frequency must be graduated according to the effect on the particular patient. The temperature must be kept at about 98 to 100 F., the tub protected from drafts and a careful watch maintained on the pulse. It may be necessary to have a cool pad on the forehead. When the bath is ended, the skin should be dabbed almost dry and anointed with plain ointment of rose water or wool fat thinned with petrolatum. Or the patient may be put into a bed full of talcum powder and covered with the same powder that has already been used.

The drug from Germany might be one of many. No new German drug has gained any reputation for its value in these cases. As already indicated, remissions may occur in pemphigus foliaceus once in a while and cures have been reported in a few cases. The percentage of fatalities would probably run over 99, though no statistics are available. The maintenance of strength, weight and courage and the absence of lesions of the mucous membrane are favorable; but in spite of these the prognosis is bad.

GALACTOSE TOLERANCE TESTS—CHOLESTEROL IN BLOOD IN JAUNDICE

To the Editor:—1. Will you kindly give me information as to the significance of the galactose tolerance test in cases of jaundice? How is this test performed? 2. What is the value of the determination of cholesterol esters in the blood in cases of jaundice? Kindly omit name.

M.D., New York.

ANSWER.—1. The galactose tolerance test is a liver function test. Its significance in cases of jaundice is therefore related to the amount of injury to the liver that is associated with the jaundice in a particular case. In this connection, the large functional reserve of the liver must be remembered. It has been shown that, in dogs, 70 per cent of the liver substance can be excised, with survival of the animal and the restoration of the liver bulk in a few weeks. There is every reason to believe that the human liver has similarly large powers of recuperation. Thus it is possible to have constant slow destruction of liver substance occurring in patients, with simultaneous regeneration, so that liver function tests would not reveal any liver damage. However, in cases of acute hepatitis of whatever origin affecting all or most of the liver, or in cases in which a chronic condition has cumulatively affected a large part of the liver, the galactose tolerance test may be expected to reveal some dysfunction. It is therefore of especial value in the differential diagnosis of painless jaundice (Shay, Harry, and Schloss, Eugene: Painless Jaundice, THE JOURNAL, April 23, 1932, p. 1433).

The rationale of the use of galactose for a liver function test depends on the facts that it is readily absorbed from the gastrointestinal tract; it is converted into glycogen by the liver with some difficulty as compared to other sugars; it is practically not directly utilizable by other tissues than the liver, and there is hardly any kidney threshold for this substance. It has been shown that the average normal individual excretes only 0 to 3 Gm. of galactose in the urine within five hours after ingesting 40 Gm. This, then, may be taken as the measure of the ability of the normal liver to handle galactose. Liver damage is supposed to be present when more than 3 Gm. of galactose is excreted in the urine within five hours. Since 3 Gm. is a liberal outside limit for the normal, even small amounts over that figure are considered to be abnormal.

The following is one modification of the galactose tolerance test:

After an overnight fast, the patient is given exactly 40 Gm. of galactose in two glasses of water (about 500 cc.). The mixture may be flavored with a few drops of lemon juice. The patient may take water but nothing else for the next five hours. During this period the urine is collected at hourly intervals, measured and mixed. A sample of the mixed urine is then analyzed for total sugar by Benedict's method, and the amount of sugar in the total urine output is calculated. When there is dextrose in the urine, as in patients with diabetes,

this must be first removed by yeast fermentation from the sample to be analyzed.

2. The value of the determination of cholesterol esters in the blood in cases of jaundice depends on the fact that, when taken in conjunction with the determination of the total cholesterol and bilirubin content of the blood, it affords a method of distinguishing between jaundice due to biliary obstruction and that due to parenchymatous liver disease. E. Z. Epstein has recently reported a comprehensive study of a large number of cases (Cholesterol of Blood Plasma in Hepatic and Biliary Diseases, *Arch. Int. Med.* **50**:203 [Aug.] 1932). Briefly, in obstructive jaundice there is usually a hypercholesteremia, which roughly parallels the degree of obstruction and the bilirubinemia and returns to normal with the relief of the obstruction. The cholesterol esters rise concomitantly with the total cholesterol in about half the cases; in other cases (probably associated with more liver damage) the cholesterol esters remain normal but lag relatively behind the increased free cholesterol. In cholecystitis and cholelithiasis without obstruction, the blood cholesterol does not vary significantly.

In degenerative diseases of the liver there is usually a marked divergence between the bilirubinemia and the cholesteremia; the more pronounced the liver damage, the greater the tendency to hypocholesteremia that accompanies the hyperbilirubinemia. In these cases the cholesterol esters are even more depressed than the total cholesterol and parallel the degree of liver damage even more accurately. A rise in the cholesterol ester value in such a case may be the first indication of an improved prognosis.

BLOOD UREA NITROGEN — DEXTROSE TOLERANCE

To the Editor:—1. There has been considerable discussion concerning a stand which I have taken on a small point and I wish to know what you have to say concerning it. Until recently, I sent my blood chemistry work to an approved laboratory run by an experienced technician. The reports on blood sent for urea nitrogen examinations were returned under both headings "blood urea" and "urea nitrogen," the two terms apparently used interchangeably. On questioning the technician I readily saw that she was unaware of any difference in meaning. Later, while talking with a technician formerly employed in a large laboratory in Los Angeles, I found that she also was of the opinion that the two terms covered the same thing. She also stated that requests that came in for "blood urea" or "urea nitrogen" were reported in milligrams of "blood urea nitrogen." This laboratory handles a large volume of outside work and I contend that the use of this term to cover requests for either "blood urea" or "urea nitrogen" should not be done. It is my belief that the report should be made according to the request, as the difference between the two results is a matter of multiplying the urea nitrogen figures by 2.14. I do not wish to deprecate the intelligence of physicians on the outside by suggesting that they are not capable of interpreting the report correctly. However, in view of the fact that there is this confusion among trained and state approved technicians employed solely in laboratory work, it is not impossible to see that physicians who have so little laboratory work to be done that they cannot have a laboratory of their own might forget slight technicalities. To them such a report might mean either; in one case it would be all right and in the other it would not be correct. Fortunately the patient's life does not depend on these reports, but I would appreciate knowing the opinion of others, as I seem to be making myself obnoxious. 2. Is there a typical curve for dextrose tolerance in the case of epileptic patients? 3. Please refer me to a complete study of blood sugars and sugar tolerance tests done on adults. I have been getting freak results from repeated tests on the same individual. The technic and results have been checked and seem to be working properly. Please omit name. M.D., California.

ANSWER.—1. The normal blood urea nitrogen is between 10 and 15 mg. per hundred cubic centimeters of blood, and it is this value with which most practicing physicians are familiar. It is advisable, therefore, to report a blood urea or urea nitrogen request in terms of urea nitrogen. This enables the physician to compare the urea nitrogen value with the nonprotein nitrogen more readily. It is the custom to print the normal values for comparison.

In the earlier literature there was much confusion regarding the amount of blood urea in the blood because of the use of numerous methods, and also because of the failure to distinguish between blood urea nitrogen and blood urea values.

The blood urea content is, as the correspondent states, 2.14 times the blood urea nitrogen content. Or, the urea value multiplied by 0.467 gives the urea nitrogen. The normal blood urea values are between 20 and 32, the normal nonprotein nitrogen between 25 and 40 mg. per hundred cubic centimeters of blood.

2. The dextrose tolerance of epileptic patients is usually normal. Dr. E. P. Joslin states that he has not seen a case of epilepsy in 5,091 patients with true diabetes. The coincidence of idiopathic epilepsy and true diabetes is therefore rare. An epileptic patient on a ketogenic diet, i. e., a diet in which the supply of available sugar is reduced, will show a lower blood sugar curve, but the fasting blood sugar of epileptic patients is usually normal.

3. Blood sugar determination and sugar tolerance tests are described in any larger textbooks on diabetes and in books on laboratory methods, such as "Approved Laboratory Technic," by Kolmer and Boerner, New York, D. Appleton & Co., 1931.

DESENSITIZATION IN SENSITIVITY TO PLANTS

To the Editor:—I have under my care a patient who is employed here and has charge of the greenhouse. For some years he has had a dermatitis of both hands and wrists, and recently this has appeared on his face, which became painful and tender and so swollen that his eyes were closed. The flowers to which he is sensitive are primrose, poinsettia and chrysanthemum. Of course, it is easy to say that this man can find some other occupation, but I am anxious to desensitize him, if possible, to the two plants with which he is most constantly in contact, the chrysanthemum and poinsettia. Would you please advise me the best course to pursue in proceeding to desensitize this patient? What course should he be given, what dosage, and how should it be given; that is, should it be given subcutaneously or otherwise? Can you advise me where preparations can be obtained, and approximately the cost?

M.D., Minnesota.

ANSWER.—Testing by the patch test method is advised with leaves of primrose, poinsettia and chrysanthemum and also tomato leaves, if any are grown in the greenhouse. The plants that cause eczema should give an eczematous reaction at the site of contact within a period of from twenty-four to forty-eight hours. It should last about a week.

There is no point in treating the patient with a watery extract to the plants to which he reacts, since the results would almost certainly be disappointing. Relief may be obtained by extracting the oil out of the plants to which he reacts with acetone, concentrating this to minute volume through evaporation of the acetone, and picking up the oily residue in absolute alcohol. This extract should be filtered and diluted down serially so that the lowest dilution amounts to 1 in 10,000 solution of the oil. He can again be tested with each dilution. Treatment can be given with an alcoholic extract, below that which causes a positive skin test, through weekly injections of the alcoholic extract diluted with water to such a point that the resulting mixture contains not more than 10 or 15 per cent of alcohol. The dose can be stepped up to such a point that he tolerates ordinary exposure. Even then, however, he might show dermatitis on direct contact with the plants. It would enable him to tolerate a much greater exposure than he can stand at the present time.

TREATMENT OF DISTURBANCE OF CIRCULATION

To the Editor:—A woman, about 65 years of age, has a peculiar circulatory condition. The systolic blood pressure is from 210 to 270, the diastolic from 80 to 85. The heart is slow, the rate being from 30 to 35 per minute. Her digestion seems to be poor and she is nervous. The kidneys do not seem to be affected. Can anything be done and what prognosis should I give? Please omit name. M.D., Nebraska.

ANSWER.—This patient presents many interesting possibilities. A pulse pressure of such height, namely 130 to 190, is highly suggestive of the existence of an aortic regurgitation. One must therefore carefully reexamine the patient for the presence of cardiac enlargement, which in these cases is directed downward and to the left; a visible or palpable apical thrust; a blowing diastolic murmur at the base of the heart, commonly heard best at the third left interspace near the sternal margin and transmitted down the sternum; the Duroziez murmur over the femoral artery; visible, pulsating carotid and brachial arteries, and a capillary pulse at the margins of an artificially produced hyperemic area on the forehead. A bounding, collapsing pulse should be present unless the peripheral arteries are too rigid. If some or all of these signs have been observed, the most important etiologic factors to be considered are syphilis, arteriosclerosis and rheumatism. The history and blood Wassermann or Kahn tests will be of value, and the degree of peripheral and retinal arteriosclerosis may offer a clue toward the solution of the etiology. In the absence of aortic insufficiency, high pulse pressures have been observed in instances of hypertension and arteriosclerosis and in thyrotoxicosis, but no signs pointing to the latter are mentioned. The slow pulse rate of 30 to 35 is indicative of complete heart block, the ventricles and auricles having their own independent rhythm; the pathologic disturbance is in the conducting bundle of His and may be due to scarring secondary to coronary sclerosis or to gummatous changes. Such a high systolic pressure, even in the presence of aortic insufficiency, warrants a diagnosis of hypertension, which is probably associated with renal arteriosclerosis or so-called nephrosclerosis (primary contracted kidneys). From a prognostic standpoint it is important to carry out studies on the renal function, for which the

phenolsulphonphthalein test, concentration and dilution test and blood urea or nonprotein nitrogen are adequate. Finally, it is to be recalled that there are instances of complete heart block in which, because of the long diastolic phase and more complete filling of the heart, the systolic pressure may reach as high as 200 and over and the diastolic pressure remain normal or subnormal. The indigestion may be due to a mild degree of heart failure, corroborative evidence of which would be a palpably enlarged tender liver.

The prognosis is difficult to conjecture but, in the face of good renal function, is dependent on the integrity of the myocardium. Coronary thrombosis in particular is to be feared. The therapy consists of rest for one or two hours after meals and the avoidance of overexertion, excessive stimulation and fatigue. Only light exercise, such as short walks, may be permitted. Potassium iodide, 0.3 Gm. (5 grains) and sodium bromide, 0.65 Gm. (10 grains) three times daily are useful adjuvants. In the presence of Adams-Stokes syndrome, epinephrine for the acute phase and ephedrine sulphate, 0.024 Gm. (three-eighths grain), three times daily as a prophylactic measure are of distinct efficacy. Tincture of digitalis may be given in doses of from 0.6 to 1 cc. (10 to 15 minims) three times daily for cardiac failure, if present.

EFFECTS OF EPINEPHRINE ON BLOOD SUGAR

To the Editor:—When epinephrine is injected subcutaneously, it is known that the blood sugar rises and may even spill over into the urine. I should like to know how soon after the injection the blood sugar rises, to what height it generally goes, how long the rise lasts, and whether the return is rapid or slow. Kindly let me have as many references as possible with regard to this subject and any information immediately concerned with the questions I have asked.

ISAAC APPERMAN, M.D., New York.

ANSWER.—There are surprisingly few references in the recent literature to the characteristics of the blood sugar curve after the injection of epinephrine into normal human beings. It has been shown in animals that epinephrine does not produce a hyperglycemia in the absence of the liver. The liver is therefore considered to be the source of the blood sugar, and the extent of epinephrine hyperglycemia will thus depend to a large extent on the amount of carbohydrate stored in this organ. There is also some evidence to show that part of the sugar which appears after the administration of epinephrine does not originate from glycogen stores but is newly formed from noncarbohydrate materials. Another factor that influences the hyperglycemia obtained depends on the fact that epinephrine is rather quickly destroyed by the tissues. The manner and site of injection will therefore influence the results obtained. In general, subcutaneous administration produces less acute and more prolonged effects than intravenous injection. In order to obtain comparable blood sugar curves in different normal subjects after the administration of epinephrine, one would therefore have to standardize the following factors: (1) dose of epinephrine as compared with bulk of subject; (2) carbohydrate stores of subject—previous diet, fasting period; (3) site and manner of administration of epinephrine; (4) psychic factors: hyperglycemia may follow violent emotion or pain.

The glycogenolytic effects of epinephrine following its subcutaneous injection have been observed chiefly in lower animals, particularly the rabbit. In this animal the attendant hyperglycemia has led to a severe glycosuria (as high as 8 per cent). Following the injection of 1 mg., the blood sugar elevation was distinct at the end of one hour and had returned to its normal value at the seventh hour. In man, 1 mg. injected subcutaneously effects a negligible elevation detectable only at the end of the first hour. If a glycosuria occurs at all, it is detected during the second or third hour and lasts, perhaps, two hours more. In a composite curve (four experiments on rabbits) the blood sugar elevation reached nearly 0.4 per cent at the end of the second hour, with a slow return to normal. In man, a similar dosage raised the blood sugar only from approximately 0.1 per cent to 0.15 per cent. An excellent discussion, replete with bibliographic references, appears in the Handbuch der experimentellen Pharmakologie by A. Heffter, volume II, second part (Adrenalin und Adrenalinverwandte Substanzen by P. Trendelenburg, 1924, p. 124).

We have been unable to find data on epinephrine hyperglycemia in normal human beings when all the factors cited were controlled. The data that are available, however, indicate that, following the subcutaneous injection of from 0.75 to 1 cc. of 1:1,000 epinephrine hydrochloride into normal adult human beings the blood sugar begins to rise almost immediately, and the hyperglycemia is definite within ten minutes and reaches its height in between one and two hours. The blood sugar falls to its original level within one or two hours after the peak of the curve, and a short hypoglycemic phase may follow. The time taken for recovery from the hyperglycemia seems particularly variable, as is also the height to which the blood sugar level ascends. Different reports give the height of the curve as from 156 to 250 mg. per hundred cubic centimeters.

The following references may be of some assistance:

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Lambie, C. G., and Redhead, Frances A.: Studies in Carbohydrate Metabolism, *Biochem. J.* **23:** 608 (number 4) 1929.

Cori, C. F., and Cori, G. T.: Absorption of Epinephrine from the Subcutaneous Tissue of the Rat, *Proc. Soc. Exper. Biol. & Med.* **27:** 558 (March) 1930.

Loeb, R. F.; Reeves, Esther B., and Glasier, H. P.: Response to the Injection of Epinephrine in Hepatic Disease, *J. Clin. Investigation* **10:** 19 (April) 1931.

Abbott, A. J., and Van Buskirk, F. W.: The Blood Sugar Response to Epinephrine in Thyroid-Fed Animals, *Am. J. M. Sc.* **182:** 610 (Nov.) 1931.

FISTULA OF ABDOMINAL WALL AFTER SUPRAPUBIC PROSTATECTOMY

To the Editor:—A man, aged 71, whose general condition is apparently good, was operated on a little over four months ago for the removal of an enlarged prostate causing acute obstruction. At present he has no complaint excepting for a restlessness because the abdominal wound has not entirely closed; i. e., intermittently urine comes through a very small opening necessitating the frequent changing of the sterilized gauze dressing. Is this the customary experience in these cases, and how long does it usually take before the opening closes permanently? Can anything be done to expedite matters? Kindly omit name.

M.D., New Jersey.

ANSWER.—Failure of closure of the abdominal fistula may be based either on an obstruction at the vesical outlet or on complete epithelization of the fistular canal. Whether such an obstruction is of a temporary or a permanent character can definitely be decided on by cystoscopy executed through the abdominal fistula. At any rate an attempt at relieving the obstruction, thus facilitating the closure of the sinus, may be made by passing urethral sounds or inserting an indwelling catheter for a few days. The latter manipulation, of course, involves the danger of causing urethritis and epididymitis. The persistence of the fistula for four months makes a definite result of such instrumentation rather doubtful. Failure of this necessitates exposure of the fistular canal and the adjacent area of the bladder and proper suturing of the defect after the scar tissue is excised. Such an operation at the same time furnishes an opportunity to explore the vesical outlet and determine the character of a definite obstruction, if present, and permits proper surgical attention to such an obstacle.

ENLARGED THYMUS AND LARYNGEAL STRIDOR

To the Editor:—Please advise me concerning the following case: A girl, aged 3 months, breast fed and weighing 13½ pounds (6 Kg.), is of good nutrition and appears well. She was brought in for "noisy" breathing, which has been noticed since birth to some extent, but has been more marked for the last month. While the infant has vomited a great deal, she has made steady progress in growth and development. The stridor may be heard with ease at a distance of 10 feet, but there is no cyanosis and the baby seems quite happy and comfortable. Roentgen examination reveals a wide shadow in the upper mediastinum, which is interpreted as an unusually large thymus. Is roentgen treatment advised? In view of the widespread confusion regarding the thymus gland, what attitude is the profession to take regarding such cases and inducing parents to feel secure without treating them? Is there no such thing as thymus death? Please omit name.

M.D., California.

ANSWER.—During the last two years there has been a rather abrupt change in the attitude of writers regarding conditions relative to enlargement of the thymus gland in infants. It seems possible that for several years a large number of infants have been given x-ray exposures to reduce the size of a thymus that was not causing symptoms or that would have caused no further symptoms if the x-rays had not been used. Admitting that the exact mechanics of the production of symptoms and the cause of thymic disturbances are still unexplained, it seems possible that enlargement of the thymus and the resulting symptoms may not be the same in all sections of the country. It would seem conservative to venture the statement that the demonstration of the function of the thymus gland will be followed by a less extreme attitude than either the former overemphasis or the more recent tendency to disregard simple enlargement of the thymus gland.

Given an infant with noisy breathing, there are a number of conditions that must be considered as possible causative factors in addition to the thymus. Congenital laryngeal stridor is not infrequent and should certainly be considered in the case in question. This condition may safely be expected to correct itself by the second or third year. Growths of the larynx, the most common of which are papilloma, which may be single but frequently multiple, also cause noisy breathing. The direct

examination of the larynx is to be desired in these cases and undoubtedly should be done more often than at present. The laryngeal spasm of tetany is usually quite readily recognized because of the associated manifestations. As a result of the rather general and adequate antirachitic routine usually prescribed at the present time, this type of noisy breathing is being seen less often. The presence of malformations of the larynx, growths such as hemangioma, or enlarged thyroid rests are less frequently seen.

As to the thymus itself, in view of the controversy that has arisen, and the evaluation of anteroposterior plates and those taken laterally, when these show evidence of enlargement of the thymus gland and symptoms are present it seems conservative in the present state of our knowledge to recommend x-ray exposure.

IMPOTENCE WITH GLANDULAR DEFICIENCY

To the Editor:—A white American farmer, aged 32, complains of impotence. This is characterized by weak erections, occurring involuntarily. There is complete failure of erection when desired. The family history is negative for hereditary disease excepting that the maternal relatives all tend to obesity. He is an only child. He has had no contagious diseases. In 1918 he had influenza; recovery was prompt without complications. He has not had mumps. There is no history of venereal infection. At about the age of 20, after several years of normal libido, he had a gradual cessation of libido with an increase in weight amounting to about 30 pounds (13.6 Kg.) in the course of a year. This change was not induced by any sexual shock, disappointment or other abnormality. He was married about six years ago and has one child about five years old. The marriage has no apparent effect on the condition. He has recently had treatment, probably arsenic, which had no effect. He has no discoverable physical impairment. The body symmetry is good. The height is 67 inches (170 cm.) the weight about 190 pounds (86 Kg.). The mouth and throat appear to be free from infection. The testicles and penis are normal in development. The prostate and seminal vesicles are not tender and show no enlargement. A urologic consultant reports a normal prostatic smear and normal posterior urethra. Blood counts, urine examination and a Kahn test give negative results. Is this a pituitary deficiency and, if not, what diagnosis and treatment can you offer? Please omit name.

M.D., Illinois.

ANSWER.—The absence of certain laboratory tests in the description of the case makes it impossible to state whether the pituitary or thyroid or both are affected. There can be no harm, however, in prescribing for the patient 5 grain (0.3 Gm.) tablets of the anterior lobe of the pituitary extract, two tablets (10 grains, or 0.65 Gm.) to be taken four times a day. He may at the same time take tablets of one-fifth grain (13 mg.) of thyroid extract, three times a day, and note whether there is any influence as regards the obesity. The pituitary tablets may be taken for several months without any possible danger, but while taking the thyroid the patient should be watched from time to time for unpleasant symptoms. For his weak erections, the administration of the sinusoidal faradic current is indicated. One cable is connected with a rectal electrode and the other with a wet-sponge electrode and the current is allowed to pass for about ten minutes. The rapidity of the current should be moderate and the strength should be as much as the patient can bear without any pain. These treatments may be given every four or five days. It is, of course, possible that the impotence may be primarily psychologic in its causation.

ERYTHEMA MULTIFORME

To the Editor:—Will you kindly give me your opinion as to the correctness of my diagnosis of the following symptoms and, if correct, will you give me the latest opinion as to the cause and the treatment: The patient is a boy, aged 12 years, of healthy parents; three other children are healthy. The boy is underweight (70 pounds, or 32 Kg.) and has had good health but is not very strong. In October, 1931, he had ulcers on the lip margin and on the inner side, apparently of herpes; they did not yield promptly yet were not taken seriously. At intervals since the ulcers have recurred but do not cause much discomfort. During the spell in October a few blebs came on the dorsal surface and the palm of the hands. In October, 1932, an ulcer came on the lower lip that has failed to respond to treatment. December 10, light red spots of varying size appeared on the hand, arms, legs and neck; also a few on the body, in the mouth and on the lips, with slight itching and discomfort. Constitutional symptoms are absent or very light. In from thirty-six to forty-eight hours these spots showed some fluid of light color, situated shallow in the skin with a thin layer of skin covering; after eruption there was a stinging or burning in this area. Some spots are small, others as large as a silver dollar (38 mm. in diameter). Pemphigus has been diagnosed. Please omit name.

M.D., Texas.

ANSWER.—The description suggests erythema multiforme rather than pemphigus because of the appearance of an erythema before the vesicles or bullae, the occurrence in successive attacks and the localization on the hands, arms and legs as well as in the mouth. Erythema multiforme occurs usually in a symmetrical manner; pemphigus is more apt to be asymmetrical. Erythema multiforme has been shown to have a relation to rheumatism, purpura and erythema nodosum and is supposed to be due to showers of organisms in the blood, localizing and forming emboli in the superficial skin vessels. The attacks are usually short, clearing up spontaneously in a few weeks. The chronic ulcer of the lip in the case cited may be due to some complication, though the lesions of erythema multiforme may at times persist without known cause.

During the attack the patient should be kept at rest and given alkalis. The evolution of the lesions may be hastened by a small dose, one-fourth erythema dose, of roentgen rays. They may be concealed, if desired, by calamine lotion, 8 cc., prepared calamine, 8 Gm., and zinc oxide, 8 Gm., in solution of calcium hydroxide, and rose water to make 120 cc., dabbed on as desired. Between attacks a search should be made for infectious foci and they should be removed if possible. The heart should be examined carefully for any sign of endocarditis, and efforts to raise the patient's resistance should be made. A high vitamin, calcium rich diet, stock vaccine or a vaccine made from the intestinal flora may be used and ultraviolet ray baths may be given.

SCABIES OR ECZEMATOID RINGWORM

To the Editor:—There is a subacute skin disease in this community. It affects all ages, both sexes and all classes. It seems to be infectious. It begins as discrete papules, later becoming vesicles, along the extremities, and itches intensely. It spreads slowly and may even cover the body, except the scalp, palms and soles. It causes no systemic reaction except in children, and then only slight. Please tell me what to do for it.

M. L. STUBBLEFIELD, M.D., Gorman, Texas.

ANSWER.—On so meager a description it is impossible to do more than consider the possibilities. The first thought is of one of the forms of itch caused by the animal parasites. Scabies is most likely, for the milder, less common forms are not seen in the winter. Scabies, however, causes lesions of the palms in young children. In tender skin the burrows can often be seen leading to a papulovesicle, just beyond which the parasite lies, and can be discovered by slicing off the skin at this point very superficially.

Eczematoid ringworm might be considered; but it is difficult to understand how it could affect so many. The fungus can be found by inverting on a slide the roof of a vesicle from the toes or fingers, treating the specimen for from one to seventy-two hours in 10 per cent sodium hydroxide solution in a moist chamber, then examining with the high dry lens.

The treatment of ringworm is perhaps most often successful with the use of Whitfield ointment, from 3 to 6 per cent of salicylic acid and from 6 to 12 per cent of benzoic acid in an ointment base, applied once a day to the lesions of the extremities, with zinc oxide ointment to the rest of the body where involved.

Impetigo hardly comes into consideration, for it seldom begins on the extremities.

INCREASING WEIGHT

To the Editor:—I note in the February 4 issue of THE JOURNAL an inquiry by "M.D., West Virginia," concerning the technic of increasing weight. I was somewhat surprised that the answer to the doctor's inquiry made no reference to the surest technic; namely, that of a rest cure with superalimentation by means of exclusive milk diet.

If physical exertion is reduced to a minimum and the patient receives a glass (8 ounces) of ordinary pasteurized milk every half hour from 7 a. m. to 7 p. m., making 6 quarts a day, without any other food or beverage or medication or cathartics or enemas, a gain in weight will occur at the average rate of 2½ pounds a week.

If the number of pounds of weight to be gained is determined by reference to height and weight tables, it is possible to estimate for the given case the length of time for which this rest cure must be instituted. For example, in order to gain 20 pounds, an eight weeks rest cure should be planned for.

It would take too much space to discuss this treatment in detail, but the doctor who is interested may be referred to my Manual of Psychiatry (ed. 6, New York, John Wiley & Sons, Inc., 1927), pages 392 to 395.

AARON J. ROSANOFF, M.D., Los Angeles.

CARBON DIOXIDE WITH NITROUS OXIDE-OXYGEN

To the Editor:—I noted in Queries and Minor Notes (THE JOURNAL, February 18, p. 519) the suggestion that carbon dioxide should not be used with nitrous oxide and oxygen.

Carbon dioxide has been used in the Mayo Clinic in approximately 40,000 cases in which nitrous oxide and oxygen have been used. If sufficient oxygen is given to maintain normal metabolism, carbon dioxide, not exceeding about 5 per cent in the total mixture in the breathing bag, is beneficial rather than harmful and the regulating effect of carbon dioxide on respiration may be obtained when nitrous oxide and oxygen are used, without reducing the oxygen content of the mixture below that necessary for satisfactory anesthesia and oxidation. Usually carbon dioxide is added to the nitrous oxide-oxygen mixture only intermittently during anesthesia for the purpose of controlling respiration.

JOHN S. LUNDY, M.D., Rochester, Minn.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS: Milwaukee, June 12. Sec., Dr. William H. Wilder, 122 S. Michigan Blvd., Chicago.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: The *written* examination will be given in cities of the United States and Canada where there is a Diplomate who may be empowered to conduct the examination, April 1. The *general oral, clinical and pathological* examination will be held in Milwaukee, June 13. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OTOLARYNGOLOGY: Milwaukee, June 12. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

ARIZONA: Phoenix, April 4-5. Sec., Dr. B. M. Berger, 743 E. McDowell Rd., Phoenix.

ARKANSAS: *Basic Science.* Little Rock, May 1. Sec., Mr. Louis E. Gebauer, 1002 Donoghey Bldg., Little Rock.

CALIFORNIA: *Reciprocity.* Los Angeles, April 19. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: Denver, April 4. Sec., Dr. Wm. Whitridge Williams, 422 State Office Bldg., Denver.

CONNECTICUT: *Endorsement.* Hartford, March 28. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden

HAWAII: Honolulu, April 10-13. Sec., Dr. James A. Morgan, 48 Young Bldg., Honolulu.

IDAHO: Boise, April 4. Commissioner of Law Enforcement, Hon. Emmitt Pfost, Boise.

ILLINOIS: Chicago, April 11-13. Superintendent of Registration, Mr. Paul B. Johnson, Springfield.

MINNESOTA: *Basic Science.* Minneapolis, April 4-5. Sec., Dr. J. C. McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Regular.* Minneapolis, April 18-20. Sec., Dr. E. J. Engberg, 350 St. Peter St., St. Paul.

MONTANA: Helena, April 4. Sec., Dr. S. A. Cooney, 7 W. 6th Ave., Helena.

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* The examinations will be held at centers where there are five or more candidates, May 8-10, June 26-28, and Sept. 13-15. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

NEW MEXICO: Santa Fe, April 10. Sec., Dr. P. G. Cornish, Jr., 221 W. Central Ave., Albuquerque.

RHODE ISLAND: Providence, April 6-7. Dir., Dr. L. A. Round, 319 State Office Bldg., Providence.

TENNESSEE: Memphis, March 23-24. Sec., Dr. A. B. DeLoach, Medical Arts Bldg., Memphis.

WISCONSIN: *Reciprocity.* Milwaukee, April 11. Sec., Dr. Robert E. Flynn, 401 Main St., La Crosse.

New York September Report

Mr. Herbert J. Hamilton, chief, Professional Examinations Bureau, reports the examination held by the New York State Board of Medical Examiners in Albany, Buffalo, New York and Syracuse, Sept. 19-22, 1932. The examination covered 9 subjects and included 10 questions. An average of 75 per cent was required to pass. One hundred and seventy-nine candidates were examined, 134 of whom passed and 45 failed. The following colleges were represented:

College	PASSED	Year Grad.	Number Passed
University of Colorado School of Medicine		(1930)	1
Georgetown University School of Medicine		(1928), (1932, 5)	6
George Washington Univ. School of Med.		(1931, 2), (1932, 7)	9
Howard University College of Medicine		(1928), (1930)	2
Loyola University School of Medicine		(1931)	1
Rush Medical College		(1925), (1931)	2
School of Medicine of the Division of Biological Sciences, University of Chicago		(1931)	1
University of Illinois College of Medicine		(1932)	1
Indiana University School of Medicine		(1932)	1
University of Louisville School of Med.		(1929), (1932, 4)	5
Johns Hopkins University School of Medicine		(1927), (1930)	2
University of Maryland School of Medicine and College of Physicians and Surgeons		(1929), (1932, 2)	3
Boston University School of Medicine		(1932)	1
Harvard University Medical School		(1928), (1929), (1932)	3
Tufts College Medical School		(1932)	1
University of Michigan Medical School		(1917), (1929), (1930), (1931), (1932, 2)	6
St. Louis University School of Medicine		(1931), (1932, 4)	5
Washington University School of Medicine		(1931), (1932)	2
University of Nebraska College of Medicine		(1930)	1
Albany Medical College		(1932, 2)	2
Columbia University College of Physicians and Surgeons		(1929), (1931, 2), (1932, 4)	7
Cornell University Medical College		(1930), (1932, 3)	4
Long Island College of Medicine		(1931, 2), (1932, 9)	11
New York Homeopathic Medical College and Flower Hospital		(1932, 8)	8
Syracuse University College of Medicine		(1931), (1932, 2)	3
University and Bellevue Hosp. Med. Coll.		(1931, 2), (1932, 10)	12
University of Buffalo School of Medicine		(1929), (1932, 4)	5
University of Rochester School of Medicine		(1931), (1932)	2
Hahnemann Med. Coll. and Hosp. of Philadelphia		(1932, 2)	2
Jefferson Medical College of Philadelphia		(1930)	1
University of Pennsylvania School of Medicine		(1932)	1
Woman's Medical College of Pennsylvania		(1931)	1
Medical College of the State of South Carolina		(1931)	1
University of Vermont College of Medicine		(1931)	1
Medical College of Virginia		(1932)	1
Queen's University Faculty of Medicine		(1929), (1930)	2
University of Toronto Faculty of Medicine		(1931)	1
McGill University Faculty of Medicine		(1929)	1
Karl-Franzens-Universität Medizinische Fakultät, Graz		(1931)	1
Medizinische Fakultät der Universität Wien		(1926)*	1
Université de Lyon Faculté de Méd. et de Pharmacie		(1932)*	1
Regia Università di Genova degli studi Facoltà di Medicina e Chirurgia		(1931)*	1
Regia Università di Napoli. Facoltà di Medicina e Chirurgia		(1927), (1931)	2
Regia Università di Roma degli studi Facoltà di Medicina e Chirurgia		(1932)*	1
Licentiate of the Royal College of Surgs., Edinburgh		(1932)*	1
University of Edinburgh Faculty of Med.		(1931),* (1932, 4)*	5
Osteopaths			2

College	FAILED	Year Grad.	Number Failed
University of Colorado School of Medicine		(1929)	1
Yale University School of Medicine		(1931)	1
Georgetown Univ. Sch. of Med.		(1930), (1931, 2), (1932, 2)	5
University of Kansas School of Medicine		(1929)	1
University of Louisville School of Medicine		(1928)	1
Johns Hopkins University School of Medicine		(1925)	1
St. Louis University School of Medicine		(1932)	1
Long Island College of Medicine		(1932)	1
New York Homeopathic Med. Coll. and Flower Hosp.		(1932)	1
Syracuse University College of Medicine		(1932, 3)	3
University and Bellevue Hospital Medical College		(1932, 2)	2
University of Buffalo School of Medicine		(1932)	1
Hahnemann Med. College and Hospital of Philadelphia		(1932)	1
Jefferson Medical College of Philadelphia		(1931)	1
Temple University School of Medicine		(1930)	1
University of Pittsburgh School of Medicine		(1932)	1
Queen's University Faculty of Medicine		(1927)	1
Laval University Faculty of Medicine		(1925)	1
Lékárské Fakulty Karlovy University, Prague		(1931)	1
University of London Faculty of Medicine		(1930)*	1
Université de Paris Faculté de Médecine		(1930)*	1
Medizinische Fakultät der Friedrich-Wilhelms-Universität, Berlin		(1929), (1931)*	2
Magyar Királyi Erzsébet Tudományegyetem Orvostudományi, Hungary		(1927)*	1
Regia Università di Bologna degli studi Facoltà di Medicina e Chirurgia		(1932)*	1
Regia Università di Napoli. Facoltà di Medicina e Chirurgia		(1925)*	1
Regia Università di Palermo degli studi Facoltà di Medicina e Chirurgia		(1930)	1
Regia Università di Roma degli studi Facoltà di Medicina e Chirurgia		(1931), (1932)*	2
Psycho-Neurological Institute, Petrograd, Russia		(1910)*	1
University of Saratov Faculty of Medicine, Russia		(1922)*	1
Licentiate of the Royal College of Physicians, and of the Royal College of Surgeons, Edinburgh, and of the Royal Faculty of Physicians and Surgeons of Glasgow		(1931)	1
University of Edinburgh Faculty of Medicine		(1931),* (1932)*	2
University of St. Andrews Conjoint Medical School, St. Andrews and Dundee, Scotland		(1932)*	1
Osteopaths			3

Mr. Hamilton also reports 32 candidates licensed by endorsement from Nov. 1, 1932, to Jan. 1, 1933. The following colleges were represented:

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Bennett Medical College, Chicago		(1910)	Illinois
State University of Iowa College of Med.		(1930), (1931)	Iowa
University of Louisville Medical Department		(1917)	Indiana
Johns Hopkins Univ. School of Med.		(1907), (1921), (1929) (1929), (1931) N. B. M. Ex.	Maryland,
Detroit College of Medicine		(1908)	Michgian
Detroit College of Medicine and Surgery		(1918)	Michigan
Washington University School of Medicine		(1922)	New Jersey
Albany Medical College		(1931)	N. B. M. Ex.
Columbia University College of Phys. and Surgs.		(1930)	N. B. M. Ex
Ohio State University College of Medicine		(1930)	Ohio
Western Reserve University School of Medicine		(1928)	Ohio
Jefferson Medical College of Philadelphia		(1920, 2)	Puerto Rico
Meharry Medical College		(1931)	Tennessee
Vanderbilt University School of Medicine		(1929)	Tennessee
Medical College of Virginia		(1922)	Virginia
University of Virginia Department of Med.		(1925), (1930)	Virginia
University of Toronto Faculty of Medicine		(1925)	Ohio
Helsingfors Univ. Medicinska Fakulteten, Finland		(1903)	Michigan
Odessa State Medical Institute, Russia		(1922)	*New Jersey
Universidad Central de España Facultad de Medicina, Madrid		(1927)	Illinois
Osteopaths		Illinois, 2; New Jersey, 3	

* Verification of graduation in process.

Colorado October Report

Dr. William Whitridge Williams, secretary, Colorado State Board of Medical Examiners, reports the written examination held in Denver, Oct. 4, 1932. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. Eleven candidates were examined, 9 of whom passed and 2 failed. Nine physicians were licensed by endorsement. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
University of Colorado School of Medicine		(1931)	89.8, 91.1
Rush Medical College		(1932)	86.8
Harvard University Medical School		(1932)	83.7
McGill University Faculty of Medicine		(1915)	91.6
Osteopaths		75.1, 85, 85, 85	

	FAILED	Per Cent
Osteopaths		67.1, 72.8

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical Evangelists		(1930), (1932)	N. B. M. Ex.
University of Colorado School of Medicine		(1930)	N. B. M. Ex.
Howard University College of Medicine		(1926)	Ohio
Rush Medical College		(1921)	Illinois
University of Kansas School of Medicine		(1907)	Kansas
University of Nebraska College of Medicine		(1923), (1925)	Nebraska
University of Oklahoma School of Medicine		(1931)	Oklahoma

Book Notices

The Art of Anæsthesia. By Paluel J. Flagg, M.D., Visiting Anæsthetist to Manhattan Eye and Ear Hospital. Fifth edition. Cloth. Price, $5. Pp. 416, with 149 illustrations. Philadelphia & London: J. B. Lippincott Company, 1932.

In the preface, the author gives recognition to the fact that the art of anesthesia is acquired by becoming familiar with the laws that govern the administration of anesthesia and by developing the ability to correlate these laws. Although a knowledge of the laws is essential, this knowledge is superseded by the ability to apply them properly. He points out that this controlling element is what constitutes the essence of the art, and that the conduct of a thousand anesthesias, instead of leading to crudeness in technic, should make one a thousand times more careful. Although he recommends that the anesthetist know the science of anesthesia, he apparently wishes in this book to consider principally the art. He also points out that ether is the best anesthetic agent available for routine use. He recommends prudence in the approach to risks, temperate enthusiasm for untried agents, and steadfastness in doing what is right in spite of opposition or reward. In the period of sixteen years since the publication of the first edition of this work, the author has not found it necessary to make changes in what he thought at that time were fundamentals in anesthesia. He has found it necessary to include only new developments. He includes a brief historical sketch of anesthesia in ancient times and presents photostatic copies of interesting documents concerning Crawford W. Long's use of ether, and references to the early use of chloroform, nitrous oxide, ethyl chloride, cocaine and procaine. An outline is presented of the degrees of general anesthesia, which is referred to in various places in the text. The remainder of the book is divided into two parts. Part I deals with general, local and spinal anesthetic agents and methods. In part II are considered the remaining factors in the administration of anesthetics.

In part I, chapter 1, the author writes of general anesthesia as the first and most important type of anesthesia. He writes masterfully and explains the proper attitude toward general anesthesia. In chapter 2 he considers the stages of anesthesia: induction, maintenance and recovery; under induction he considers excitement, rigidity and relaxation. He takes up the causes and the control of each of these stages, dealing especially with difficulties and how they may be overcome. He considers various postures and their effect on respiration and relaxation. He quotes from Connell in his explanation of the percentage, or vapor tension, of ether in the air, in the lung and in the blood during various stages and degrees of anesthesia. In chapter 3, the signs of anesthesia are considered under the five headings of respiration, color, musculature, eye and pulse. The author also reviews the various methods of artificial respiration. Chapter 4 consists of general considerations of ether anesthesia; for example, the best type of ether mask, convenient methods of handling the anesthetic, the closed method, and various types of apparatus for use in application of closed methods by both oral and nasal methods. He gives attention also to intrapharyngeal and intratracheal methods. He mentions the use of ether by rectum but is not enthusiastic about the method. Intravenous ether anesthesia is mentioned but not recommended. Chapter 5 is on ethyl chloride, which is considered briefly. Chapter 6 is devoted to chloroform, which is discussed in some detail. The author's preference, however, if chloroform is to be used, is for the C.-E. mixture consisting of ether three parts and chloroform two parts at the beginning of the administration; pure ether is added to the mixture as anesthesia progresses, and the content of chloroform becomes very small. The author considers this mixture safer than chloroform alone, although he gives as his reason that the addition of ether to chloroform reduces the likelihood of circulatory depression. Chapter 7 is on nitrous oxide, which is treated at length. The relevant physics and chemistry are presented, and convenient appliances that the author or others have devised for the use of this agent are explained. Chapter 8 is on nitrous oxide and oxygen, which is briefly discussed. Chapter 9 is on nitrous oxide, oxygen and ether, which appears to be a favorite combination of the author. He shows pictures of several pieces of apparatus for the use of these agents and considers the difficulties encountered in their administration and the means of obtaining good results. Chapter 10 is on ethylene and is brief, since the problems involved in the use of this agent are similar to those encountered in the use of nitrous oxide. In chapter 11 is considered local anesthesia by freezing, pressure, and intravenous injections of procaine hydrochloride. In chapter 12 is taken up local anesthesia with procaine hydrochloride for surface, infiltration and regional anesthesia. The subject is covered in five and a half pages. Chapter 13 includes general considerations of spinal anesthesia, and in chapter 14 is taken up briefly the administration of spinal anesthetics.

Part II, chapter 15, includes preliminary medication, drugs, dosage and the time of administration. Chapter 16 is devoted to the postoperative treatment of the patient, the nurse's function before and during the anesthesia, and the treatment of various conditions, such as protracted unconsciousness, and circulatory shock, after anesthesia and operation. Chapter 17 presents an excellent discussion of carbon dioxide, especially from the standpoint of rebreathing. Chapter 18 is concerned with emergency anesthesia, and several ingenious devices are suggested which may be used under circumstances in which little is available to work with. Chapter 19 is concerned with anesthetists' records, and chapter 20 deals with various types of aspirators. In chapter 21 the author bares his soul and expresses the point of view of the patient in a most impressive way; this is the chapter the anesthetist should read if he reads any part of this book. Chapter 22 is given over to the selection of the anesthetic for patients of various ages and for various types of operations, for labor, and in the presence of status lymphaticus. In this chapter reference is made to synergistic anesthesia. In chapter 23 is taken up intratracheal anesthesia, with the author's well known contribution to improvement of this technic. Chapter 24 deals with the various methods of artificial respiration and includes several reports of cases which indicate the value of the author's method. In chapter 25 is taken up basal anesthetics, including the barbiturates, especially sodium amytal and tribrom-ethanol. The author is not inclined to advocate the routine use of basal anesthetics at this time.

Essentials of Pediatric Nursing. By Ruth Alice Perkins, R.N., B.S., Assistant Director of Nursing, Ohio State University School for Nurses. Second edition. Cloth. Price, $2.75. Pp. 467, with 61 illustrations. Philadelphia: F. A. Davis Company, 1932.

The enthusiastic reception accorded this concise treatise on pediatric nursing has warranted an augmented and enlarged edition. The original text has been added to, especially in the chapters on breast feeding, nutrition, hygiene, and normal growth and development. A section has been added on the pediatric aspects of nursing in communicable diseases, and a chapter on the nursing of children requiring orthopedic care. An excellent teaching outline is appended, which may be used as a guide for nursing courses in pediatric procedure. The material is accurate, concise and practical. For the student nurse and the graduate who intends to follow pediatric nursing as her vocation, the theoretical contents are adequate, and the practical instruction is excellent. The exact and detailed descriptions of nursing procedure contained in this volume must be the most essential part of the education of any nurse whose vocation is to be the care of sick children. She must know how to carry out the special procedures used in pediatric nursing, and this information is concisely placed in her hands. For those nurses whose profession it may be to teach pediatric nursing procedure, this volume will prove a valuable guide and aid. Adequate references are included at the end of each chapter, and the volume is well illustrated.

The Last Adam. By James Gould Cozzens. Cloth. Price, $2.50. Pp. 301. New York: Harcourt, Brace & Co., 1933.

Few American novels of recent years have shown such an actual comprehension of the life of a certain type of country doctor as has this recent selection of the Book-of-the-Month Club. The book is written almost photographically with a paucity of diction that gives the reader a sense of both suspense and action. The central character is a general practitioner in a small community, who is at the same time health officer. He is confronted with an epidemic of typhoid fever which arouses great excitement in the community and an attempt to drive the doctor out of the place that he has so long held among the people. His friends rally about him. Through it all he conducts himself with a humanness that is the particular mark of physicians of this type regardless of their competence or incompetence scientifically. In one paragraph the old doctor contrasts the medicine of the past with the medicine of today:

> The real trouble was, I forgot to put on a big show entitled "The Wonders of Science." He lifted the glass and drank thoughtfully. "Funny thing, Janet, to see the change there. When I was first practicing, they kind of thought a doctor was a medicine man. They didn't know what it was all about; he was sort of dabbling in the occult, and anything he did was all right with them. They don't know any more now; but they've been reading the papers and they want some of that, not God knows what, out of a bottle. You ought to see Verney's place. Nurses sitting around in uniform making urinalyses. Half a ton of fluoroscopic machines. Verney telling all the women to get undressed for a thorough examination. When he's through, he has a four page record. Nine cases out of ten, he doesn't know a thing he couldn't have found out by feeling a pulse and asking a couple of questions. Talk about the occult! But everybody thinks when he's written down so much he must know something; and the women are purring like cats, wondering if he didn't think they looked pretty good in the raw. That's giving them proper attention. People like the Bannings, who can pay for it, are going to have proper attention or know why not."

Éléments de technique physiologique. Par Jean Gautrelet, directeur du laboratoire de biologie expérimentale à l'école pratique des hautes-études. Paper. Price, 60 francs. Pp. 420, with 287 illustrations. Paris: Masson & Cie, 1932.

This admirable compilation of physiologic procedures should interest alike the student and the experimenter. For each experiment the author indicates the materials and instruments required and the exact procedure to be followed, and gives useful bibliographic references together with a brief discussion of the principles involved. The three main divisions deal with experiments on the dog, rabbit and frog (with a few on the cat, pigeon, turtle and quail), and in each part the author takes up, besides the usual experimental procedures on circulation, respiration, digestion and metabolism, such subjects as the measurement of chronaxia, the methods of extirpation and of perfusion of organs (isolated and in situ), and the preparation of various fistulas. The book deserves a prominent place in the library of every physiologic or pharmacologic laboratory, and the author is to be congratulated on having produced a useful and usable manual.

A Guide to Human Parasitology for Medical Practitioners. By D. B. Blacklock, M.D., D.P.H., D.T.M., Professor of Parasitology, Liverpool School of Tropical Medicine, the University of Liverpool, and T. Southwell, D.Sc., Ph.D., A.R.C.Sc., Lecturer in Helminthology, School of Tropical Medicine, Liverpool. Cloth. Price, $4. Pp. 271, with 124 illustrations. Baltimore: Williams & Wilkins Company, 1932.

The authors of this work have had wide experience in the field of parasitology. The book has a twofold purpose, as a practitioner's guide and as a textbook for students in tropical medicine and hygiene and in public health. The text is strictly limited to the pathogenic parasites of man, and the structural features utilized are those most helpful in the immediate diagnosis of the species under discussion. This elimination of detail and the abundant diagrammatic illustrations result in a simplification and increase in usability of the book for the physician who is called on to diagnose any of the well known human animal parasites. For the less common or exceptional ones he must turn to a more encyclopedic parasitology, such as that of Brumpt, or a helminthology, such as that of Faust. The authors have provided useful keys for identification and have presented the life cycles in the form of a vertical series of illustrations with suitable explanations, which reveal at a glance the sequence of stages and the agencies and vectors involved in their spread and maintenance. There are also useful tables showing the approximate sizes of the nematodes of man, together with the diagnostic features of the helminth ova and larval stages. A tabular summary is given of the life history and distribution of the filarias of man, of the infectivity of the eggs and larvae of worms found in man, and of the geographic distribution of human helminths. There is a list of parasites whose infective stages are carried by water, in foods other than flesh, and in meat, fish, crustaceans and liver. There is also a list of parasitic diseases for which arthropods serve as vehicles or vectors of the causative spirochetes, protozoans or helminths, of fluke diseases for which snails are the vehicle, and of those for which fingers contaminated with soil or feces are the vehicles. Tables are given which show the location of infective stages of parasites and the modes of infection for each, the tissues and organs invaded by the parasites in man, the diagnostic features of the parasites, and drugs, dosages and treatments. This is a practitioner's book *par excellence.*

The Psycho-Analysis of Children. By Melanie Klein. Authorized translation by Alix Strachey. Cloth. Price, $5; 18s. Pp. 393. New York: W. W. Norton & Company, Inc., 1932.

Tracing back a neurosis to its origin in the individual's life history, one invariably finds its deepest roots in conflicts that arise in the first years of childhood. Melanie Klein is the first analyst to follow out in practice the procedures suggested by this observation—to deal with these conflicts at the time they arise. Applying analysis to young children means of course a modification of the technic used in the analysis of adults. One cannot ask a child 3 years old to lie down on a couch and say everything that passes through its mind. Instead, Mrs. Klein encourages the child to express its emotions in playing and then interprets to it the desires, impulses and fear reactions, which reveal themselves in the play in a more or less disguised form. She thus uncovers the particular fear situation with which the child could not cope and diminishes this fear, whereupon the neurotic reactions—compulsive ideas, phobias and the like—disappear. The author presents her experiences in the present volume, illustrating the technical procedure with transparent case material and showing deep insight in the early development of the instinctive side of life, particularly the amazing amount of fear and aggression. The second part of the book, which contains the theoretical conclusions, is on a somewhat lower scientific level for two reasons: infantile fantasies are uncritically regarded as being the dynamic source of certain developments; and extremely hypothetical assumptions of Freud, as that of the death instinct, are uncritically used as "explanations" for early destructive impulses.

Zur Klinik und Analyse der psychomotorischen Störung. Von Dr. Otto Kauders, Assistent der Universitätsklinik in Wien. [Aus der psychiatrischen Universitätsklinik in Wien. Vorstand: Prof. Dr. Otto Pötzl.] Sonderausgabe von Heft 64 der „Abhandlungen aus der Neurologie, Psychiatrie, Psychologie and ihren Grenzgebieten." Paper. Price, 12.60 marks. Pp. 132. Berlin: S. Karger, 1931.

This monograph is an excellent phenomenologic presentation by Kauders, associate of the psychiatric clinic of the University of Vienna, who is well known in Europe as a representative of the Schilder-Goldstein school of neuropsychiatry, which emphasizes the pluralistic rather than the "either or" approach to psychiatric and neurologic phenomena. The author brings up cases of organic psychoses such as encephalitis and delirium tremens and shows how inadequate a simple neurologic approach to these problems is and how closely the psychiatric material is interwoven with the various neurologic manifestations. The book is clearly written and the various points are emphasized with force and intelligence. The point of view is probably more novel in Europe than in America, as Meyer and his students have emphasized this idea for many years.

Handbuch der Geisteskrankheiten. Herausgegeben von Oswald Bumke. Band IX: Spezieller Teil. Teil 5: Die Schizophrenie. Redigiert und mit einem Vorwort versehen von K. Wilmanns. Paper. Price, 86 marks. Pp. 783, with 99 illustrations. Berlin: Julius Springer, 1932.

In this section of Bumke's psychiatry the subject of schizophrenia is dealt with in the same adequate manner that has characterized the previous volumes. As each part of this series is published it looms up more and more as the most adequate writing concerning psychiatry. So many details are given in each work that a satisfactory review cannot be given. This handbook should certainly be in every medical library and in the personal library of every psychiatrist.

Medicolegal

Qualifications of Medical Expert as Affected by Locale of Practice

(Geraty v. Kaufman (Conn.), 162 A. 33)

The defendant-physician was sued for damages for alleged negligence in treating a spiral fracture of both bones of the plaintiff's left leg. The defendant, the plaintiff claimed, applied a circular plaster cast, and, even in the face of indications of impaired circulation in the leg, did not split the cast until two days after it had been applied and did not remove it until six days after application. To prove that this treatment was improper the trial court admitted, over the defendant's objections, the testimony of several medical experts who practiced in New Haven, Connecticut, but not in New London, the community in which the plaintiff was treated by the defendant. These medical experts testified that the standard practice in the treatment of such fractures and the application of necessary casts was the same throughout the state and that that practice required the cast to be split within a few hours after application, and, if left solid for a longer period, to be split on the first sign of impairment of circulation, so as to relieve the pressure. From a judgment in favor of the plaintiff, the defendant appealed to the Supreme Court of Errors of Connecticut.

The defendant contended that the medical experts should have been permitted to testify with respect to the standard of practice only in the community where he practiced, New London. The test in this state, said the Supreme Court of Errors, in determining what constitutes reasonable care, skill and diligence, is the care, skill and diligence which physicians in the same general neighborhood and in the same general line of practice ordinarily have and exercise in like cases. The rule does not restrict the territorial limitation to the confines of the town or city in which the treatment was rendered, and under modern conditions there is perhaps less reason than formerly for such restriction. There is now no lack of opportunity for the physicians in smaller communities to keep abreast of the advances made in their profession and to be familiar with the latest methods and practices adopted. It is not unreasonable to require that they have and exercise the skill of physicians in similar localities in the same general neighborhood. It may not be sufficient if they exercise only that degree of skill possessed by other practitioners in the community in which they practice.

The question involved in this case, continued the court, is the slightly different one of whether or not a physician, in order to qualify and testify as an expert, must be familiar with the practice in the particular community in which the treatment was given, or if it is sufficient if he is acquainted with the general practice in the state. If a physician may be expected to be familiar with the methods and practices of physicians in similar localities beyond the limits of his own community, a physician may properly be permitted to testify as to the general practice in the state in the application and treatment of plaster casts. It may fairly be assumed that the standard practice in such a matter would not materially differ in the various hospitals in the state. There is no unfairness to the defendant in admitting such evidence. Indeed, a case might well arise in which it would be a practical impossibility for the plaintiff to procure expert witnesses who could testify that they know what the practice was as to the particular operation in a particular community. The judgment in favor of the plaintiff was accordingly affirmed.

Hospitals: Liability for Malpractice After Person Responsible for Original Injury Has Been Released from Liability.—The plaintiff was injured in an automobile accident and was taken to the defendant-hospital for treatment. Later he sued the hospital for damages, claiming that through the negligence of certain of its employees his injuries were aggravated. The hospital contended that he was barred from bringing the action because, for a consideration, he had released the person responsible for the automobile accident from all liability. A person, said the Supreme Court of Florida, division B, who has negligently injured another is liable in damages for any aggravation of those injuries due to the malpractice of a hospital or physician, if the injured person has used care in selecting the hospital or physician. The hospital or physician aggravating the original injury is jointly and severally liable with the original wrongdoer. A release from liability to one of the parties jointly or severally liable operates as a release to all other parties liable. Therefore, the release to the original wrongdoer operated to release the hospital from liability.—*Feinstone v. Allison Hospital, Inc. (Fla.), 143 So. 251.*

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Montgomery, April 18-21. Dr. D. L. Cannon, 519 Dexter Avenue, Montgomery, Secretary.
American Association for Thoracic Surgery, Washington, D. C., May 1-3. Dr. Duff S. Allen, 3720 Washington Boulevard, St. Louis, Secretary.
American Association of Anatomists, Cincinnati, April 13-15. Dr. George W. Corner, University of Rochester School of Medicine, Rochester, N. Y., Secretary.
American Association of Genito-Urinary Surgeons, Washington, D. C., May 8-10. Dr. Henry L. Sanford, 1621 Euclid Avenue, Cleveland, Secretary.
American Association of Pathologists and Bacteriologists, Washington, D. C., May 2-3. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.
American Bronchoscopic Society, Washington, D. C., May 10. Dr. Edwin McGinnis, 104 South Michigan Boulevard, Chicago, Secretary.
American Gastro-Enterological Association, Washington, D. C., May 9-10. Dr. John Bryant, 311 Beacon Street, Boston, Acting Secretary.
American Gynecological Society, Washington, D. C., May 8-10. Dr. Otto H. Schwarz, 630 South Kingshighway, St. Louis, Secretary.
American Laryngological Association, Washington, D. C., May 9-10. Dr. George M. Coates, 1721 Pine Street, Philadelphia, Secretary.
American Neurological Association, Washington, D. C., May 9-11. Dr. Henry A. Riley, 117 East 72d Street, New York, Secretary.
American Ophthalmological Society, Washington, D. C., May 8-10. Dr. J. Milton Griscom, 2213 Walnut Street, Philadelphia, Secretary.
American Orthopedic Association, Washington, D. C., May 8-10. Dr. DeForest P. Willard, 1916 Spruce Street, Philadelphia, Secretary.
American Otological Society, Washington, D. C., May 8-9. Dr. Thomas J. Harris, 104 East 40th Street, New York, Secretary.
American Pediatric Society, Washington, D. C., May 8-10. Dr. Hugh McCulloch, 325 North Euclid Avenue, St. Louis, Secretary.
American Physiological Society, Cincinnati, April 10-12. Dr. Frank C. Mann, Mayo Institute, Rochester, Minn., Secretary.
American Society for Clinical Investigation, Washington, D. C., May 8. Dr. H. L. Blumgart, Beth Israel Hospital, Boston, Secretary.
American Society for Experimental Pathology, Cincinnati, April 10-12. Dr. C. Phillip Miller, Jr., University of Chicago Department of Medicine, Chicago, Secretary.
American Society for Pharmacology and Experimental Therapeutics, Cincinnati, April 10. Dr. V. E. Henderson, Medical Building, University of Toronto, Toronto, Canada, Secretary.
American Society of Biological Chemistry, Cincinnati, April 10-12. Dr. Howard B. Lewis, University of Michigan Medical School, Ann Arbor, Mich., Secretary.
American Surgical Association, Washington, D. C., May 1-3. Dr. Vernon C. David, 59 East Madison Street, Chicago, Secretary.
Arizona State Medical Association, Tucson, April 20-22. Dr. D. F. Harbridge, 822 Professional Building, Phoenix, Secretary.
Arkansas Medical Society, Hot Springs, May 2-4. Dr. William R. Bathurst, 814 Boyle Building, Little Rock, Secretary.
Association of American Physicians, Washington, D. C., May 9-10. Dr. James H. Means, Massachusetts General Hospital, Boston, Secretary.
California Medical Association, Del Monte, April 24-27. Dr. Emma W. Pope, 450 Sutter Street, San Francisco, Secretary.
Congress of Physicians and Surgeons of North America, Washington, D. C., May 9-10. Dr. John T. King, Jr., 1210 Eutaw Place, Baltimore, Secretary.
District of Columbia, Medical Society of the, Washington, May 3. Dr. C. B. Conklin, 1718 M Street N. W., Washington, Secretary.
Federation of American Societies for Experimental Biology, Cincinnati, April 10-12. Dr. C. Phillip Miller, Jr., University of Chicago Department of Medicine, Chicago, Secretary.
Georgia, Medical Association of, Macon, May 9-12. Dr. Allen H. Bunce, 139 Forrest Avenue, N. E., Atlanta, Secretary.
Harvey Cushing Society, Louisville, Ky., April 13-14. Dr. Tracy J. Putnam, 818 Harrison Avenue, Boston, Secretary.
Iowa State Medical Society, Des Moines, May 10-12. Dr. Robert L. Parker, 3510 Sixth Avenue, Des Moines, Secretary.
Kansas Medical Society, Lawrence, May 2-4. Dr. J. F. Hassig, 804 Huron Building, Kansas City, Secretary.
Louisiana State Medical Society, Lake Charles, April 25-27. Dr. P. T. Talbot, 1430 Tulane Avenue, New Orleans, Secretary.
Maryland, Medical and Chirurgical Faculty of, Baltimore, April 25-26. Dr. Walter Dent Wise, 1211 Cathedral Street, Baltimore, Secretary.
Mississippi State Medical Association, Jackson, May 9-11. Dr. T. M. Dye, Clarksdale, Secretary.
Missouri State Medical Association, Kansas City, May 1-4. Dr. E. J. Goodwin, 634 North Grand Boulevard, St. Louis, Secretary.
New York, Medical Society of the State of, New York, April 3-5. Dr. Daniel S. Dougherty, 2 East 103d Street, New York, Secretary.
North Carolina, Medical Society of the State of, Raleigh, April 17-19. Dr. L. B. McBrayer, Southern Pines, Secretary.
Ohio State Medical Association, Akron, May 2-3. Mr. Don K. Martin, 131 East State Street, Columbus, Executive Secretary.
South Carolina Medical Association, Spartanburg, April 18-19. Dr. E. A. Hines, Seneca, Secretary.
Tennessee State Medical Association, Nashville, April 11-13. Dr. H. H. Shoulders, 706 Church Street, Nashville, Secretary.
Texas, State Medical Association of, Fort Worth, May 8-11. Dr. Holman Taylor, Medical Arts Building, Fort Worth, Secretary.
West Virginia State Medical Association, Charleston, May 8-10. Mr. Joe W. Savage, Professional Building, Charleston, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, St. Louis

15: 1117-1211 (Dec.) 1932

*Treatment of Chronic Dacryocystitis and Lacrimonasal Fistulization: Author's Procedure. R. Argañaraz, Buenos Aires, Argentina.—p. 1117.
*Magnet Extraction from Vitreous. E. Stieren, Pittsburgh.—p. 1120.
First American Eye Journal and Its Editor. R. I. Lloyd, Brooklyn.—p. 1123.
*Papilledema and Intracranial Complications of Leukemia. E. Hill, Richmond, Va.—p. 1127.
Effects of Intense Light on Retina: Report of Bilateral Macular Burn. P. D. Berrisford, St. Paul.—p. 1133.
Practice of Ophthalmology. G. Frey, New York.—p. 1138.
Slit Lamp Ophthalmoscopy: Describing New Instrument. J. N. Evans, Brooklyn.—p. 1144.
Intracapsular Cataract Extraction by Vacuum Cup Method: Preliminary Report of Fourteen Cases. E. R. Crossley, Chicago.—p. 1147.
Present Status of Diathermy in Ophthalmology. G. H. Poos, St. Louis.—p. 1150.
Squamous Cell Epithelioma at Limbus: Case Report. G. Freiman, Brooklyn.—p. 1157.

Treatment of Chronic Dacryocystitis.—After enumerating the advantages and disadvantages of the various methods of treating chronic dacryocystitis, Argañaraz describes a method of lacrimonasal fistulization in which, after the sac has been opened through the lower canaliculus, a trocar with cannula is pushed into the nose through the thin bony wall, the cannula being kept in place until healing is complete. The cannula is composed of a small gold tube 2 mm. in diameter by approximately 2 cm. in length and is provided with numerous holes. The extremity of the trocar is introduced into the interior of the lacrimal sac through the incision made in its external wall, and the delicate bony lamina of the lacrimal groove is trephined. Little pressure is necessary to overcome the feeble resistance of the bony wall. The trocar must be directed downward and inward at an angle of approximately 45 degrees. The cannula exactly fits the extremity of the trocar, and on withdrawal of the latter it is left in position. The cannula must be mobilized daily to favor the formation of a fistula communicating between the lacrimal sac and the nasal cavity. This is indispensable for the success of the operation. Postoperative inflammatory reaction is rare, it is not necessary to apply any bandage, and the dacryocystitis and lacrimation from which the patient has been suffering stop immediately, provided the operation has been well performed and the cannula placed in position through the lacrimal sac.

Magnet Extraction from Vitreous.—Stieren believes that in magnet extraction from the vitreous one should give the patient on admission to the hospital a full immunizing dose of tetanus antitoxin, not only for its specific action but also as a foreign protein to insure systemic support for the ocular injury. The position of the foreign body being definitely known by roentgen localization, a conjunctival flap is dissected as near the site of the foreign body as possible. This flap must contain all the subconjunctival tissue; the sclera should be bared. A double armed suture is passed through each end of the flap, entering from below at one end and from above at the other. This leaves a long stitch on the outside. This suture is used as a retractor, so that the flap can be pulled well out of the way of the field. The knife used to incise the sclera must not be plunged into the vitreous but should penetrate only deep enough to cut through the sclera, choroid and retina. The author prefers a crucial incision, as it facilitates the delivery of the foreign body adhering to the magnet. After using many kinds of knives and keratomes he finally devised a sclerotome that penetrates little more than 2 mm. and has a double edge and an extremely sharp point. One uses only the cone tip of the hand magnet, applying it over the site of the foreign body, then making contact, and slowly moving the magnet toward the incision. One can repeat this a number of times if not successful in getting the foreign body on first contact, changing the angle of direction each time. If these maneuvers do not succeed in bringing the foreign body into the incision, one lightly presses the cone tip into the wound and makes contact, again changing the direction of the magnetic pull. The important thing is to disturb the vitreous as little as possible. Nor should a live magnet ever be approached to an eye containing a magnetic foreign body; contact should be made only when the stage is set or else the steel particle may be drawn about in the interior of the eye and cause untold damage. After the delivery of the foreign body, pure phenol is applied to the scleral incision and the double armed suture is passed beneath the opposite conjunctiva and tied on top, thus completing the toilet of the wound. From 1 to 2 cg. of physiologic solution of sodium chloride is injected subconjunctivally, but not near the scleral incision, and the eye is closed. The author has rarely had detachment of the retina occur. This is due to the fact that the unwise practice of plunging a cataract knife or inserting magnet tips into the vitreous results in the formation of vitreous bands, which draw on the retina by contraction and bring about detachment in this manner. If the vitreous is examined with the slit lamp the path of a foreign body in its transit to the posterior part of the globe can be seen. It is logical to infer that drawing the foreign body again to the anterior segment of the eye with a strong magnet will create a parallel path and again injure the vitreous with the possible formation of a band which by contraction could readily detach the retina. The use of phenol in the scleral wound is of value in creating a local plastic inflammation which attaches the choroid and retina to the sclera. The best results are obtained when the foreign body has been in the eye for a short period of time.

Papilledema and Complications of Leukemia.—According to Hill, the leukemias are both localized and generalized processes, attacking the eye and the brain. These processes simulate tumors and exhibit what may be termed a "malignant" tendency. As such they reproduce the picture of both hemorrhage and tumor in the cranial cavity, increasing intracranial pressure and causing papilledema. Anatomic studies of optic nerve heads and retinas in these cases regularly support the mechanical theory of choked disk and tend to disprove the inflammatory theory. They suggest the possibility that local alterations due to abnormal cellular contents in the central retinal vessels may bring about papilledema without the cooperation of an engorged vaginal sheath; in other words, the possibility of the clinical picture of papilledema without increased intracranial pressure. This hypothesis may throw light on some of the more unusual cases recorded as choked disk accompanying quite localized inflammatory processes. Even so, the alterations in the disks are due to edema and not to inflammation.

American Journal of Pathology, Boston

8: 639-811 (Nov.) 1932

*Glomerular Lesions Associated with Endocarditis. E. T. Bell, Minneapolis.—p. 639.
*Glomerular Changes in Kidneys of Rabbits and Monkeys Induced by Uranium Nitrate, Mercuric Chloride and Potassium Bichromate. W. C. Hunter and J. M. Roberts, Portland, Ore.—p. 665.
Histologic Studies of Hypersensitive Reactions. L. Dienes and T. B. Mallory, Boston.—p. 689.
Histochemical Study by Micro-Incineration of Inclusion Body of Fowl Pox. W. B. C. Danks, St. Louis.—p. 711.
Medionecrosis Aortae Idiopathica Cystica. A. R. Moritz, Cleveland.—p. 717.
Mesenterium Commune with Intestinal Obstruction. A. R. Moritz, Cleveland.—p. 735.
Fibrocystic Disease of Bones Associated with Tumor of Parathyroid Gland: Report of Case. R. S. Rosedale, Buffalo.—p. 745.
*Study of Pathogenicity of Bacillus of Calmette-Guérin (B C G). W. H. Feldman, Rochester, Minn.—p. 755.
Two Simple Methods for Silver Impregnation of Nerve Fibers in Paraffin Sections of Central and Peripheral Nervous System. N. C. Foot, Cincinnati.—p. 769.
Effect of Different Types of Fixation on Silver Impregnation of Paraffin Sections of Peripheral Nerve. N. C. Foot, Cincinnati.—p. 777.
Silver Impregnation of Glia and Nerve Fibers in Paraffin Sections After Formalin Fixation. Helenor Campbell Wilder, Washington, D. C.—p. 785.

Glomerular Lesions Associated with Endocarditis.—Bell found two forms of glomerulitis, namely, diffuse and embolic, in association with endocarditis. Diffuse glomerulitis

was found with the various types of endocarditis as follows: acute rheumatic, 22.2 per cent; acute primary bacterial, 28.6 per cent; subacute bacterial, 64.8 per cent, and secondary acute, 33.3 per cent. It is characterized by an increase in the number and size of the endothelial cells and often by thickening of the capillary basement membrane. The extent of capillary obstruction is usually much less than in clinical acute glomerulonephritis, but in seven instances of subacute endocarditis glomerulitis had reached the clinical level. Diffuse glomerulitis bears some relation to the intensity and duration of septicemia. Embolic, or focal, glomerulitis was found in the different forms of endocarditis as follows: acute rheumatic, 2.9 per cent; acute primary bacterial, 7.1 per cent; subacute, 52.8 per cent, and secondary acute, 5.8 per cent. In one instance there was no endocarditis. Two distinct types of embolic lesions occur—the fresh hyaline and the fibrous. The fresh hyaline lesion in its simplest form is a capillary thrombosis and all the smaller lesions are readily recognized as such. The larger lesions are composed of many thrombosed capillaries, which may be identified until the capillary walls have undergone necrosis. The hyaline lesion is not an infarct but a thrombosis and necrosis of capillaries resulting from the lodgment of bacteria. The necrotic portion of the glomerulus disintegrates and disappears. The fibrous lesion is a reaction characterized by a marked growth of the basement membranes of the capillaries. The thickened membranes obliterate the capillaries and give the glomerulus a fibrous structure. The fibers are formed entirely from basement membranes; there is no invasion by fibroblasts from without. The fibrous lesions, like the fresh hyaline, may involve one or more lobules or the entire glomerulus. It develops independently of the fresh hyaline lesions. In subacute bacterial endocarditis there were fifteen instances of severe renal insufficiency, of which five were due to embolic glomerulonephritis, seven to acute and three to chronic glomerulonephritis. The fresh, hyaline, embolic lesions develop earlier than the fibrous and may be found at any time during the course of the disease. The frequent absence of embolic lesions in typical clinical examples of subacute bacterial endocarditis has not been explained. Diffuse glomerulitis is frequently found in association with embolic lesions. Epithelial crescents frequently cause atrophy of the glomerular tufts by compression. Fibers form between the epithelial cells and convert the crescent into a dense fibrous structure. These fibers are of epithelial origin. In the glomeruli, fibers which later give the staining reactions of collagen are formed from three distinct sources—intracapillary fibers from the endothelial cells, fibers formed from thickened capillary basement membranes, and fibers formed by the epithelial cells of the crescents.

Glomerular Changes in Kidneys.—By a special staining method (azocarmine) Hunter and Roberts were able to demonstrate distinct changes, interpreted as evidences of injury, in the glomerular basement membrane of kidneys damaged by uranium nitrate, mercuric chloride and potassium bichromate. The lesions in the basement membrane are purely degenerative in character, present in both acute and chronic stages of chemical nephropathies, and appear to be permanent. The renal glomerulus is more vulnerable to poisons than the tubules and fails to develop the same degree of increased resistance toward them. The authors advance the opinion that alterations in the basement membrane of the type described may play an important part in the renal disturbances induced by certain metallic salts. Fibrosis and connective tissue hyperplasia are not responsible for the appearance of the glomeruli in chronic uranium and sublimate nephropathies. The existence of other long recognized glomerular changes demonstrable with ordinary stains is affirmed. Uranium nitrate and mercuric chloride produce more histologic alterations in the glomeruli than potassium bichromate.

Study of Pathogenicity of Bacillus of Calmette-Guérin.—Using a strain of B C G obtained from Calmette of the Pasteur Institute, Feldman made a deliberate attempt to increase its pathogenicity by growing subcultures of the organism on a glycerinated egg medium. Transfers were made every thirty days. From each succeeding subculture, four guinea-pigs were given injections—two intracerebrally, one subcutaneously and one intraperitoneally. The report deals with data obtained after subcultures of the organism had been grown on glycerinated egg medium for fifteen generations. Of a total of fifty-eight guinea-pigs inoculated, lesions histologically indistinguishable from those of genuine tuberculosis occurred in the tissues of eleven, and cultures of acid-fast bacilli were obtained from each. Although the majority of the lesions occurred in animals that had been given intracerebral injections, one animal that was given an intraperitoneal injection and another given a subcutaneous injection died with lesions of a tuberculous nature. So far, attempts have failed to promote a succession of tuberculous lesions by the reinoculation into guinea-pigs of infective material from lesions. The particular strain of B C G studied is not devoid of pathogenicity for guinea-pigs, and the assertion that the organism is innocuous cannot be accepted without reservations. Subculturing the organism on glycerinated egg medium at monthly intervals for a period of fifteen generations did not markedly enhance its virulence.

American Journal of Psychiatry, Baltimore

12: 415-652 (Nov.) 1932

*Mental Phenomena Observed in Cases of Brain Tumor. G. W. Henry, White Plains, N. Y.—p. 415.
Erethizophrenia and Kolyphrenia: Physiologic Conception of Psychologic Types and Their Relation to Psychopathology. J. R. Hunt, New York.—p. 475.
The Pilgrim State Hospital. F. W. Parsons, Albany, N. Y.—p. 493.
Deletion of Function and Adaptive Compromise. D. Gregg, Wellesley, Mass.—p. 511.
Age Incidence of Paresis. M. C. Petersen, St. Peter, Minn.—p. 521.
Potentiality for Change in Personality. E. Kahn and L. H. Cohen, Boston.—p. 523.
Diathermy in Treatment of General Paresis. H. A. McKay, K. G. Gray and W. C. Winans, Mimico, Ont., Canada.—p. 531.
Psychiatry and the Criminal. F. H. Leavitt, Philadelphia.—p. 541.
Measurement of Mental Deterioration in Dementia Praecox. R. Schwarz, Dannemora, N. Y.—p. 555.

Mental Phenomena Observed in Brain Tumor.—Of more than 1,000 verified cases of brain tumor gathered chiefly from the literature, Henry made a digest for the purpose of determining to what extent the psychiatrist may contribute to the diagnosis and the localization. He states that neoplasms in the brain according to their location give rise to mental phenomena by which the evolution of the cephalic portion of the nervous system may be traced. In the pontomedullary region, mental phenomena are absent except for the late effects of intracranial hypertension. At times there is a disturbance of tactile sensibility, i. e., with one of the most primitive means of contact with the external world. This disturbance is manifested by the appearance of tactile hallucinations. Neoplasms affecting the base of the brain are manifested by disturbances in growth as well as by peculiar and exquisite pain reactions. They give rise to automatic laughing and crying and to crude motor phenomena in the form of rigidity, tremor, choreoathetoid movements, assumption of fixed postures, somnolence, stupor, inability to react to the presence of food in the mouth, drooling, automatic resistiveness, mutism and in general to the manifestations of parkinsonism or catatonia. Occasionally the howling or other cries reminiscent of a lower mammalian stage in evolution are observed. Cerebellar neoplasms give rise to disorders in locomotion and the maintenance of posture and to distant pressure effects. The associated mental phenomena are about as crude as those of the pontomedullary region. The crude visual illusory and hallucinatory phenomena observed with lesions in the occipital lobes may be elicited directly through the growth of neoplasms or indirectly through increase of subtentorial pressure. These phenomena are less commonly observed because tumors of the occipital lobes are much less frequent. As the frontal lobes are approached, the mental phenomena observed are increasingly complex and highly elaborated. Neoplasms in the region of the fissure of Rolando disturb functions peculiar to human beings, such as reading, writing and speech. On the other hand, lesions in the temporosphenoidal lobes, i. e., those affecting the archipallium, give rise to gross gustatory and olfactory disorders. In other words, the response is a disturbance of primitive functions and of those senses on which lower animals depend in their external contacts. Neoplasms of the temporal lobes may be accompanied by both auditory and visual hallucinations. These are usually highly organized and resemble the visions and voices characteristic of the functional psychoses. In general it appears that lesions of the temporal lobes are prone to give rise to hallucinatory phenomena. Thus far in the progression toward the frontal region, visual hallucinations have been more com-

mon. When the frontal lobes are affected, however, highly organized auditory hallucinations are more frequently observed. In this respect there is a closer approximation to the psychogenic psychoses. Neoplasms in the frontal lobes also produce gross personality changes and loss of the refinements in social contact that are characteristic of most highly civilized people. Destructive lesions cause a prompt regression to the mode of living characteristic of intracranial hypertension, but when this is the sole factor the mental phenomena tend to fluctuate with the variations in intracranial pressure. Certain mental phenomena accompany the growth of brain tumors and often precede the appearance of neurologic changes. It is essential that expert psychiatric observations be made in all cases, and in general these observations are equally important to those of the neurologist in arriving at the diagnosis and the localization of brain tumor.

Archives of Otolaryngology, Chicago

16: 767-904 (Dec.) 1932

Clinical Experiences in Surgical Treatment of Facial Palsy by Autoplastic Nerve Grafts: Ballance-Duel Method. A. B. Duel, New York.—p. 767.
Congenital Atresia of Anterior Nares: Report of Two Cases in Sisters. Annette C. Washburne, Madison, Wis.—p. 789.
Laryngostroboscopy in Practice of Otolaryngology. L. A. Kallen, New York.—p. 791.
*Allergy and Cytologic Examination of Nasal Smears. M. C. Johnson and D. W. Goldstein, Fort Smith, Ark.—p. 808.
Constitutional Deafness. M. J. Gottlieb, New York.—p. 814.
*Association of Acute Sinusitis and Acute Otitis Media in Infants and in Children. E. H. Campbell, Philadelphia.—p. 829.
Abscess of Pterygomaxillary Fossa Complicating Otitic Infections: Review of Literature and Report of Case. C. C. Grant, Cedar Falls, Iowa.—p. 845.
Early Diagnosis in Meningitis: Chemical Studies of Spinal Fluid. S. J. Kopetzky and Ella Fishberg, New York.—p. 851.

Allergy and Cytologic Examination of Nasal Smears.—Johnson and Goldstein's series of thirty-four cases is composed of patients who consulted a rhinologist because of symptoms referable to the nose or eyes and who from the history or examination, including the cytologic study of nasal smears, were suspected of being allergic. The ages of the patients in the series varied from 2 to 55 years. The ratio between male and female patients was about equal. The inhalants were the most common offenders. No one food stood out conspicuously in the results of testing. The most frequent symptom was obstruction to nasal breathing, due to nasal congestion, accompanied by a watery nasal discharge. Sneezing was the next in frequency. Seasonal variation was found in six cases. In the remaining cases, the symptoms were referable to the nose the year round. Exacerbations on exposure to dust were marked. Seven patients had other conditions suggestive of an allergic cause, such as eczema, asthma, migraine or spastic colitis. Contrary to the statement usually made that allergic patients show a pale and waterlogged nasal mucosa, the authors found that the color varied from a pale pink to a deeply injected red. In cases in which the symptoms had been present over a period of months, the picture of the pale and boggy mucosa was found. Polypi were found in five cases. In only a few cases was a dark frontal or maxillary sinus found on transillumination. The percentage of eosinophils found on examination of the slides varied from 5 to 100. The authors found that the count often varied within twenty-four hours. This may be due to an actual difference in the percentage of the various types of cells present or to the fact that only 100 cells were counted. The cells tend to lie in groups of from three to ten or more, and the field examined may not be a true index of the total number present.

Acute Sinusitis and Acute Otitis Media.—Campbell states that a report of a rather small number of cases, in which acute sinusitis was found in practically 100 per cent of the cases of acute otitis media, does not necessarily prove that all cases of otitis are secondary to sinusitis, but it at least suggests the common association of the two conditions. Furthermore, it suggests that in cases of otitis media the treatment should not be confined to the ear but should be largely directed to the elimination of the sinus infection. This can probably be done best by the frequent and thorough removal of the secretions, little stress being placed on the use of antiseptics. The results of this study further emphasize the importance of considering more seriously infection of the sinuses as a contributing factor in gastro-intestinal conditions as well as in many other disorders of infancy. It is to be hoped that, with the realization of the frequency of sinus infection in infants and children and the direct and remote complications which ensue therefrom, more adequate prophylactic and therapeutic measures may be discovered to combat such conditions.

Colorado Medicine, Denver

29: 457-528 (Dec.) 1932

Causes of Changed Mortality Rates. J. B. Crouch, Colorado Springs.—p. 460.
The Voice in Health and Disease. H. S. Rusk, Pueblo.—p. 463.

Georgia Medical Association Journal, Atlanta

21: 463-506 (Dec.) 1932

Historical Sketch of Fulton County Medical Society. W. S. Goldsmith, Atlanta.—p. 463.
*Treatment of Pneumonia. J. B. Avera, Brunswick.—p. 467.
Economic Status of Medical Profession. B. T. Beasley, Atlanta.—p. 469.

Treatment of Pneumonia.—Avera states that in pneumonia the heart should be under control from the onset of the disease. The use of veratrum is elective. The blood pressure should be watched constantly. Digitalis should be given at the onset of the disease and continuously. It should be administered hypodermically in dosages depending on the patient's size and age. The bowels must be moved daily. Food should be given in small amounts regularly, as solid food will help to keep distention down. Good nursing is half of the treatment. Fresh, warm air is necessary. The patient should be kept quiet. Chest applications are elective but should be tried in every case unless the patient objects to their use. Antipyretics and serums are elective. Distention should be guarded against from the beginning. Drastic measures should be resorted to before allowing the patient to become distended. Dextrose and insulin should be given at the first sign of any dehydration, toxemia, or a high diacetic urine test, this being one of the most important steps in the treatment of pneumonia. The author's conclusions are based on the efficiency of dextrose and insulin treatment in approximately 100 cases of pneumonia with no fatalities.

Illinois Medical Journal, Chicago

62: 477-570 (Dec.) 1932

Rheumatic Heart Disease. F. M. Smith, Iowa City.—p. 497.
Lumbar Sympathetic Ramisection for Relief of Pain Due to Carcinoma of Uterus. R. A. Kordenat, Chicago.—p. 503.
Right Sided Aorta: Report of Case. D. L. Jenkinson, Chicago.—p. 505.
Nephrosis: Report of Case. W. Pearce, Quincy.—p. 508.
*Radiographic Diagnosis and Management of Mastoiditis. D. S. Beilin, Chicago.—p. 513.
*Clinical Experiences in Treatment of Peptic Ulcer with Gastric Mucin. S. J. Fogelson, Chicago.—p. 516.
*Factors of Importance in Treatment of Exophthalmic Goiter. W. O. Thompson, Chicago.—p. 520.
Maternal Mortality and Common Sense. A. Hall, Springfield.—p. 529.
Pioneering in Financial Prophylaxis. T. P. Foley, Chicago.—p. 533.
Agranulocytosis. A. A. Hayden, Chicago.—p. 537.
Complications of Puerperium. E. C. McGill, Evanston.—p. 540.
*Treatment of Postoperative Ileus with Spinal Analgesia. G. G. Brown, Chicago.—p. 544.
Allergic Nasal Disease. L. B. Bernheimer, Chicago.—p. 547.
Public Health Aspects of Institutional Care of Indigent Patients by the State Department of Public Welfare. H. Worthington, Chicago.—p. 550.
Some Aspects of Mechanics of Chest: Their Causes and Effects. M. H. Winters, Galesburg.—p. 555.
Potassium Sulphocyanate in Hypertension. M. T. Bolotin Chicago.—p. 557.
Original Diagnoses in Two Thousand Cases of Definite Pulmonary Tuberculosis. G. T. Palmer, Springfield.—p. 560.

Diagnosis and Management of Mastoiditis.—According to Beilin, the roentgenographic examination of the mastoid reveals its type, the extent of its development, the cells involved and their location, the position of the sinus, as well as the character of the anterior sinus wall, and the tegmen tympani. Repeated roentgen examinations are of value in determining whether the infectious process in the mastoid is clearing up, remaining stationary or advancing. In conjunction with the clinical observations, the roentgenographic examination may indicate or contraindicate surgical intervention. The presence of perisinuous abscess or epidural abscess may often be elicited by this examination. The roentgenographic examination of the mastoid is of cardinal importance, as well as indispensable as a diagnostic aid in all cases of mastoiditis.

Treatment of Peptic Ulcer with Gastric Mucin.—Fogelson states that although mucin has been used for only approximately two years in the treatment of peptic ulcer, the following conclusions are justified: 1. Experimentally, gastric mucin inhibits protein digestion in vivo. 2. The incidence of experimental ulcer formation in the dog can be radically reduced by adequate doses of mucin. 3. One hundred and seventy intractable, complicated peptic ulcer patients were treated by the three associated Northwestern University Medical School groups, and by clinicians throughout the United States cooperating with the gastric mucin committee. Over 90 per cent of these patients were relieved of all subjective symptoms in approximately one week. 4. There have been two recurrences in the 110 peptic ulcer patients treated by the author during 1931.

Treatment of Exophthalmic Goiter.—Thompson calls attention to the fact that the form in which iodine is administered in exophthalmic goiter does not matter. The effective dose of iodine is much smaller than that ordinarily employed. Although iodine is important, too much dependence must not be placed on it. It has reduced the number of deaths from postoperative crises but has not abolished them. Therefore, everything that is known to act favorably on the disease should be used to augment the effect of iodine; e. g., a high caloric diet and rest. The patient should be prepared for operation in the hospital and not at home. Operation should never be performed when the metabolism is rising rapidly, whether iodine is being administered or not. Gain in weight and well marked reduction in basal metabolism during the administration of iodine indicate that the postoperative reaction will probably be mild. One of the most important factors in determining the ability of the patient to withstand a subtotal thyroidectomy appears to be the intensity of the nervous manifestations of the disease. In all doubtful cases, the operation should be done in at least two stages. The extent of the thyroidectomy should be determined by the initial severity of the disease and the response of the patient to treatment and only rarely by the pulse rate during operation. Auricular fibrillation in the absence of other untoward signs is not a contraindication to a subtotal thyroidectomy. While the most important use of iodine is to prepare patients for operation, in a few mild cases it will control the disease indefinitely, and in many cases in which the disease persists following a subtotal thyroidectomy it may be controlled by iodine until it disappears.

Treatment of Postoperative Ileus.—Brown reports that three-fifths the anesthesia dose of procaine hydrochloride given intraspinally apparently relieved all symptoms of ileus in three cases that previously appeared hopeless. The small dose does not cause such a great fall in blood pressure and when given below the first lumbar vertebra is fairly safe. The good results from blocking the splanchnics overbalance the dangers in a severe case of postoperative ileus. Intravenous injections of dextrose should be given during the spinal analgesia to counteract the fall in blood pressure.

Indiana State Medical Assn. Journal, Fort Wayne

25: 519-580 (Dec. 15) 1932

Chronology of Indiana State Medical Association Since Oct. 15, 1907. J. H. Weinstein, Terre Haute.—p. 519.
History of "The Journal." W. N. Wishard, Indianapolis.—p. 529.
History of Medical Education in Indiana in Last Twenty-Five Years. B. D. Myers, Bloomington.—p. 531.
Indiana State Board of Health. W. F. King, Indianapolis.—p. 536.
Eye Fundus Lesions in Nephritis. A. E. Bulson, Fort Wayne.—p. 537.
The Pathologic Mastoid: Complications, Diagnosis, Management. W. F. Clevenger, Indianapolis.—p. 541.
Physiotherapy. L. A. Ensminger, Indianapolis.—p. 544.

Johns Hopkins Hospital Bulletin, Baltimore

51: 335-393 (Dec.) 1932

Changes in Total Gaseous Metabolism of Unanesthetized Dogs After Intravenous Injection of Posterior Pituitary Extracts. E. M. K. Geiling and A. M. DeLawder, Baltimore.—p. 335.
*Etiology and Pathogenesis of Whooping Cough. A. R. Rich, Baltimore.—p. 346.
Splenic Lesion in Hemolytic Jaundice. W. P. Thompson, New York.—p. 365.
*Paratyphoid-Like Fever in Children Due to Salmonella Suipestifer Group. Ann G. Kuttner and H. D. Zepp, Baltimore.—p. 373.

Whooping Cough.—According to Rich, the evidence is insufficient to prove that the Bordet-Gengou bacillus represents the whole story of the etiology of whooping cough. He shows that influenza bacilli localize in the cilia of the respiratory tract exactly as do Bordet-Gengou bacilli. They are found in this location when they act as secondary invaders, not only in pertussis but also in influenza and in measles. The presence of gram-negative bacilli in the cilia in pertussis does not mean, therefore, that they are Bordet-Gengou bacilli. The relation of the influenza bacillus to paroxysmal cough is discussed. Mononuclear-cell infiltration of the bronchial walls, which is characteristic of interstitial pneumonia, occurs in pertussis uncomplicated by pneumonia. It is pointed out that this interstitial change occurs almost exclusively in diseases in which there are strong reasons for suspecting the etiologic rôle of filtrable viruses (measles, influenza, pertussis), and the possibility that this lesion may be the effect of an invisible virus rather than of secondary bacterial invaders is discussed. Observations bearing on the view that an invisible virus may be concerned in the etiology of pertussis are presented. Cases showing intranuclear inclusion bodies in the lungs in pertussis are described, and the possibility that these may represent the effect of aspirated herpes virus is discussed. Experiments that have demonstrated the existence of a filtrable virus associated with pertussis, and capable of producing respiratory catarrh, are reported in a separate communication, together with evidence relating to the rôle of the Bordet-Gengou bacillus.

Paratyphoid-Like Fever in Children.—Kuttner and Zepp describe seven cases of infection with bacilli of the hog cholera group (Salmonella suipestifer) in children ranging from 7 months to 6 years. The organisms were isolated by blood culture in every instance and fell into two groups, six of the cultures belonging to group II (monophasic) and one to group I (diphasic).

Journal of Infectious Diseases, Chicago

51: 383-578 (Nov.-Dec.) 1932

Chemical Composition of Active Principle of Tuberculin: XVI. Local Cutaneous Sensitization (Arthus Phenomenon) Produced in Normal Rabbits and Guinea-Pigs by Protein of Tuberculin. Florence B. Seibert, Chicago.—p. 383.
Appearances Produced in Blood Agar by Bacteria of Bacterium Coli Group. M. Paulson and J. H. Brown, Baltimore.—p. 407.
Hemophilus Influenzae from Throats of Polar Eskimos. J. R. Wells and Evelyn Dixon, St. Louis.—p. 412.
Isolation and Differentiation of Tubercle Bacilli on Bordet-Gengou and Löwenstein Mediums. Lucy Mishulow, New York.—p. 416.
*Bacterial Transformation: I. Opaque and Translucent Variants of Strain of Bacillus Dysenteriae (Gay-Harris Group). A. Compton, Alexandria, Egypt.—p. 428.
Suggested Medium for Growth of Corynebacterium Diphtheriae. A. M. Wahby, Ithaca, N. Y.—p. 441.
Possible Relation of Aciduric and Acidogenic Micro-Organisms to Dental Caries. W. H. Tucker, Chicago.—p. 444.
Precipitin Reaction: II. Effect of Certain Electrolytes on Formation of Precipitates. Cornelia M. Downs and Selma Gottlieb, Lawrence, Kan.—p. 460.
Effect of Vitamin A-Free Diet on Resistance to Infection by Salmonella Enteritidis. L. S. McClung and J. C. Winters, Austin, Texas.—p. 469.
Effect of Dietary Deficiency of Vitamin D in Relation to Infection by Salmonella Enteritidis. L. S. McClung and J. C. Winters, Austin, Texas.—p. 475.
Attempt to Grow Tubercle Bacilli Within Single-Celled Organism Colpidium Campylum. Lucia E. Jordan, Chicago.—p. 482.
Adenotonsillectomy and Disease of Upper Respiratory Tract (Common Cold) in Adults. W. M. Gafafer, Baltimore.—p. 489.
Equine Encephalomyelitis. Beatrice F. Howitt, San Francisco.—p. 493.
Antigenic Properties of Virus of Rabies: II. Multiplicity of Strains as Shown by Agglutinin Absorption and Neutralization. L. C. Havens and Catherine R. Mayfield, Montgomery, Ala.—p. 511.
*Latent Period in Passive Anaphylaxis. J. H. Lewis, Chicago.—p. 519.
*Behavior of Bacteriophage in Body Fluids and Exudates. M. G. Colvin, New Haven, Conn.—p. 527.
Clostridium Botulinum, Type C, Associated with Western Duck Disease. Janet B. Gunnison and G. E. Coleman, San Francisco.—p. 542.
Local Skin Reactivity to Bacterial Filtrates: Variations in Neutralizability of Meningococcus Reacting Factors. G. Shwartzman, New York.—p. 552.
Influence of Cornstarch, Sucrose and Banana Powder on Acid-Base Equilibrium and Bacterial Flora of Gastro-Intestinal Tract of Rat. L. Arnold, Elladeane Korando and Virginia Ryan, Chicago.—p. 556.
Results of Examination of Blood for Tubercle Bacilli by Löwenstein's Culture Method. W. Haymaker, W. Ekhart and J. Freund, Philadelphia.—p. 562.
*Poliomyelitis: III. Results of In Vitro Neutralization Tests on Serums of Both Treated and Untreated Poliomyelitic Patients. Beatrice F. Howitt, San Francisco.—p. 565.

Bacterial Transformation.—Compton describes two naturally occurring variants, opaque (O) and translucent (T), of an organism of the Gay-Harris group of Bacillus dysenteriae, encountered in cases of acute bacillary dysentery at Alexandria.

He presents sharply defined differences between the variants in cultural, morphologic, serologic and lytic properties, with less sharply defined differences in virulence, immunizing power and susceptibility to the bactericidal action of normal serum. There appears to be no detectable difference between them in sensitiveness to salt or in biochemical properties. He discusses characteristic lenticular or fusiform bodies, which are a feature of colonies of the O variant on agar. They are thought to be of the nature of bacterial aggregates and may be a cause of the fluorescence. The usual confirmatory tests for "smoothness" and "roughness" of bacterial variants—sensitiveness to salt, clouding of broth and specific agglutination—find no application as distinguishing tests of "opaqueness" and "translucence." Instead, the differential confirmatory tests for this type of bacterial variation are internal lenticular bodies in the colony structure, fluorescence by obliquely transmitted artificial light, and phage action.

Latent Period in Passive Anaphylaxis.—Lewis states that in his experiments he could not confirm the experiments of Friedberger indicating that the latent period in passive anaphylaxis could be dispensed with by using an homologous sensitizing antiserum. With the use of a guinea-pig antituberculoprotein serum of high titer, guinea-pigs can be passively sensitized to a fatal anaphylactic death in not less than four hours after the injection of the sensitizing serum, the same period required for sensitization with a heterologous antiserum. The smooth muscle of the guinea-pig uterus will show anaphylactic sensitization two hours after an intravenous injection of homologous sensitizing serum. An isolated guinea-pig uterus is passively sensitized after remaining in a solution of guinea-pig antituberculoprotein serum for two hours. The uterus is not sensitized after four hours in a solution of rabbit antihorse serum. The failure of the author's and of other reported experiments to show that the latent period of passive sensitization can be dispensed with, even with the use of homologous antiserum, leaves the positive results of Friedberger to be explained on some other basis.

Bacteriophage in Body Fluids and Exudates.—Colvin outlines the results of his clinical investigations in fifty-five patients in regard to the importance of the various factors concerned in inhibition of bacteriophagy in body fluids. He found that variation of serum, body fluid, race of bacteriophage and bacterial strain or species introduces distinct differences in the amount of inhibition. His attempts to adapt a staphylococcic or a streptococcic phage to produce complete lysis in serum have been practically unsuccessful. He shows that repeated contact with serum may have a tendency to make an organism lysis-resistant and that consequently an adaptation to resist lysis develops. A study of the mechanisms of inhibition to lysis shows that serum delays multiplication of the bacteriophage but does not prevent specific fixation of the corpuscle. In the serum, the protein fraction is the main factor in inhibition of lysis, while in urine the crystalloid fraction inhibits. The observations suggest that bacteriophagy in the body is much modified as compared to test tube standards of lysis. This modification is in the direction of lessening the sterilizing capacity of the bacteriophage.

Poliomyelitis.—According to Howitt's observations, of the serums from twenty-two treated patients who had recovered from poliomyelitis, six (27.2 per cent) gave positive in vitro neutralization of poliomyelitis virus, two (9 per cent) gave partial protection in the monkey, while fourteen (63.6 per cent) showed no protection. Of the serums from twenty untreated patients, eight (40 per cent) showed positive neutralization, one (5 per cent) gave partial protection, while eleven (55 per cent) failed to neutralize the virus. Antiviral substances may be present in a certain percentage of treated persons, but apparently those receiving serum treatment show less tendency to produce neutralizing substances than the untreated ones. The patients showing complete recovery after transient or only slight paralysis give more evidence of the production of a potent serum than those in whom severe paralysis develops. The author concludes that the results of her experiments may aid in explaining certain discrepancies in the reports on human convalescent serum therapy in poliomyelitis and certainly show the need for giving serum from known tested donors, either recovered or naturally immune to the disease. The use of a standardized serum from immunized large animals would naturally be indicated.

Journal of Lab. and Clinical Medicine, St. Louis

18: 111-218 (Nov.) 1932

*Study of Lactobacilli, with Especial Reference to Bacillus Acidophilus. F. L. Smith 2d, R. Y. Gottschall and A. B. Wallgren, Pittsburgh.—p. 111.
Study of Lactobacilli Mediums Employed. A. B. Wallgren and F. L. Smith 2d, Pittsburgh.—p. 134.
*Blood Pressure Lowering Effect of Bismuth Subnitrate by Mouth in Normal and Increased Arterial Tension. C. Bruen, New York.—p. 138.
Organic Fraction of Urinary Phosphorus. B. S. Walker and Elisabeth W. Walker, Boston.—p. 164.
*Colloidal Gold Test for Poliomyelitis Immune Bodies in Blood Serum. F. Eberson and W. G. Mossman, San Francisco.—p. 167.
Septicemia Due to Higher Bacteria: Case Report and Bacteriologic Findings. Sara Alicia Scudder, New York.—p. 187.

Lactobacilli.—According to Smith and his associates, the morphology and cultural characteristics of Bacillus acidophilus depend on the nature of the food supply, the p_H value of the medium and the presence of small quantities of inorganic metals, such as zinc, copper and iron. Any member of the lactobacillus group may be converted into or caused to assume the morphologic and cultural characteristics of any other member. The members of the lactobacillus group may be arranged in a cycle according to their morphology and cultural characteristics. Any member of this cycle in assuming the morphology and cultural characteristics of any other member passes successively through the characterization of all intervening members in the cycle. The cycle is amenable to division into two natural parts: one is composed of members whose usual habitat is intestinal, and the other contains the nonintestinal members. In the case of adverse conditions, if the organism survives, most of the nonintestinal and practically all of the intestinal forms assume the coccoid shape. The change in morphology extends over a considerable period of time, even under the most favorable conditions. This is particularly true in the synthesis of the rod shaped bacilli. The rods pass through a definite process in their synthesis and splitting, in which an interplay of gram-negative and gram-positive forms occurs.

Blood Pressure Lowering Effect of Bismuth Subnitrate.—Bruen states that arterial hypertension is mediated by increased arteriolar resistance, thereby increasing cardiac work. The abnormal arteriolar resistance is largely functional and can be reduced by dilatation. Sustained reduction of the arteriolar resistance should obviate the increased demand on the heart, defer its late secondary effects on the circulation and avoid the concomitant hypertrophy of the left ventricle and the hastened development of arteriolosclerosis. Among "the pharmacologic and therapeutic characteristics essential to a substance that is to be beneficial in arterial hypertension" is that it "must decrease the arteriolar resistance without disturbing essentially the other fundamental normal characteristics of the circulation, such as the cardiac output, the velocity of the blood flow or the circulating blood volume." Bismuth subnitrate by mouth effects a reduction of blood pressure. In intensity its effect is comparable to that of the other members of the nitrite group. But the nitrite effect of the insoluble basic bismuth nitrates is more prolonged than that of the higher alkyl nitrates. A gradually increasing dosage starting from 5 grains (0.3 Gm.) can be manipulated to give the desired degree of blood pressure reduction. By repetition of the dosage at proper intervals, a temporal summation of effect as in incomplete tetanus may be obtained. The blood pressure might by this means be maintained at a relatively constant reduced level. The nitrite action is exerted almost exclusively on the arterioles. Vasomotor responses, while moderated, remain intact.

Colloidal Gold Test.—Eberson and Mossman point out that their colloidal gold test for the detection of immune substances against poliomyelitis in the blood serum has shown to have a direct bearing and practical value in the following problems: 1. Study of susceptibility to this disease among the general population. 2. Selection of donors' serum for therapeutic use in poliomyelitis, especially during outbreaks. 3. Evaluation of therapeutic potency of serums from human and animal sources. 4. Prognosis during the course of poliomyelitis as related to the progressive development or complete absence of serum antibodies. 5. In vitro selection of "protected" mixtures of poliomyelitis immune serum combined with virus for purposes of active immunization.

Journal of Nervous and Mental Disease, New York

76: 553-676 (Dec.) 1932

Transmission of Huntington's Chorea for Three Hundred Years: Bures Family Group. P. R. Vessie, Greenwich, Conn.—p. 553.
Hughlings Jackson: His Opinions Concerning Epilepsy. O. R. Langworthy, Baltimore.—p. 574.
Paralysis Agitans Pictures in Alcoholics. P. Schilder, New York.—p. 586.
Syndrome of Avellis Variation Produced by Angiomatous Polyp in Outer, Middle and Inner Ears, Involving Tenth, Eleventh and Twelfth Cranial Nerves: Case. E. P. Fowler, New York.—p. 589.
Lumbar Punctures in Psychotic Patients. S. H. Epstein, Boston.—p. 593.

Journal of Urology, Baltimore

28: 509-638 (Nov.) 1932

Pathology of Bladder Neck Obstructions. A. Randall, Philadelphia.—p. 509.
*Technical Consideration of Endoscopic Revision of Obstructing Prostate. J. F. McCarthy, New York.—p. 519.
*Transurethral Electrosurgery for Relief of Prostatic Obstruction. C. W. Collings, New York.—p. 529.
Evolution of Vesical Neck Resection: Past Results, Future Problems and Use of Author's Resectoscope. T. J. Kirwin, New York.—p. 539.
Ten Months' Experience with Transurethral Prostatic Resection. N. G. Alcock, Iowa City.—p. 545.
*Results Five Years After Transurethral Treatment of Benign Prostatic Obstruction. H. C. Bumpus, Jr., Rochester, Minn.—p. 561.
Endoscopic Resection of Prostate: Analytic Study. R. Day, Los Angeles.—p. 569.
Experimental Research by Parabiosis, Showing Hypophyseal-Gonadal Influence on Growth and Development of Prostate Gland. W. E. Lower and N. F. Hicken, Cleveland.—p. 601.
Chronic Infection of Urachus: Report of Three Cases. J. B. Squier and G. F. Cahill, New York.—p. 607.
Diverticula of Urethra Caused by Periurethral Abscess. J. R. Waugh, Hot Springs, Ark.—p. 619.
Prostatectomy Complicated by Acidosis. R. A. Hooe, Washington, D. C.—p. 627.
New Sterilizer for Ureteral Catheters. A. M. Crance, Geneva, N. Y.—p. 637.

Endoscopic Revision of Obstructing Prostate.—McCarthy points out that in the endo-urethral management of prostatic obstructions there is a remote but none the less real menace of infection. Every precaution should be taken to obviate such an eventuality, including the most careful preoperative preparation, sterilization of urine, rigid operating room asepsis, shaving and other preparation as for open operation. Finally, and of utmost importance, secondary revisions should never be attempted until complete urethral convalescence has been established. This convalescence should be checked by endoscopic observation. In conclusion the author states that it is his conviction that as outlined by him there is not a single logical defect in the rationale of this method. In his hands it meets the most exacting requirements of visualization, excision and hemostasis.

Relief of Prostatic Obstruction.—According to Collings, small and moderate sized prostatic obstructions may be efficiently relieved under direct vision by the high tension cutting current through the cysto-urethroscope. Because of instrumental difficulty and prolonged cystoscopic manipulation, marked enlargement had best be relieved by prostatectomy. Nine of 150 private patients operated on died (on an average of two years) after operation of heart disease, carcinoma or intercurrent infection. Five per cent of all patients required a second operation to relieve them. Eighty-five per cent of this group have been relieved of their symptoms and residual urine up to eight and one-half years after operation—an average of four years for all. The operation relieves a serious condition in an elderly patient with a minimum of danger to life. The author has not had a death due to operation.

Treatment of Benign Prostatic Obstruction.—Bumpus reports that, of sixty-six patients heard from five years after transurethral treatment of benign prostatic obstruction, forty-eight expressed themselves as satisfied with the result and eighteen as dissatisfied, including six who later had to have prostatectomy. Of the twelve dissatisfied patients, two wrote that they were free of urinary symptoms but had to have sounds passed occasionally; both were operated on by cautery resection, which would seem to refute the earlier prediction that late strictures would develop in the majority of patients treated by this means. This study of 102 cases in which prostatic tissue was removed through the urethra more than five years ago because of urinary obstruction would indicate that transurethral resection should, with improvement in technic which has occurred in the last five years, be performed with less risk, with less time spent in the hospital and consequently with less expenditure of funds, with a final functional result equal in permanence to that usually obtained after prostatectomy.

Kentucky Medical Journal, Bowling Green

30: 620-720 (Dec.) 1932

Pediatrics and Pediatricians. J. L. Morse, Boston.—p. 694.
Medical Association and Milk Supply. I. V. Hiscock, New Haven, Conn.—p. 697.
Removal of Prostate Through Urethra. O. Grant, Louisville.—p. 702.
Postoperative Irradiation of Mammary Cancer. W. J. Young, Louisville.—p. 711.

Laryngoscope, St. Louis

42: 901-964 (Dec.) 1932

Evaluation of Roentgenology in Otolaryngology: I. Teeth in Relation to Otorhinology. S. Fineman, New York.—p. 901.
Id.: II. Sinuses. F. M. Law, New York.—p. 909.
Id.: III. Mastoid. G. S. Dixon, New York.—p. 911.
Id.: IV. Larynx. R. Golden, New York.—p. 915.
Id.: V. Esophagus. A. J. Quimby, New York.—p. 919.
Id.: VI. Temporal Bone and Its Variations. E. B. Burchell, New York.—p. 921.
Id.: VII. Relation of Roentgenography of Chest to the Laryngologist: Atelectasis and Neoplasms of Lungs. C. B. Rabin, New York.—p. 923.
Left Cavernous Sinus Thrombosis: Case Report. H. Dupuy, H. F. Brewster and A. Thomas, New Orleans.—p. 931.
Discharging Ear, Eighteen Years, Relieved by Nine Treatments of Mercury Quartz Light: Case Report. P. S. Stout, Philadelphia.—p. 933.
Inexpensive Photomicrographic Apparatus. R. Lorente de No, St. Louis.—p. 934.
Otitic Hydrocephalus (Pseudomeningitis): Report of Case. J. C. Seal, New York.—p. 936.
*Inferior Meatal Puncture Versus Catheterization of Natural Orifice of Maxillary Sinus. H. Dintenfass, Philadelphia.—p. 943.
*Effective Substitute for Cocaine and Procaine in Rhinolaryngology. W. L. Gatewood, New York.—p. 951.
Congenital Cyst of Larynx. A. J. Lorie and P. Lux, Kansas City, Mo.—p. 957.
Improved Pomeroy Syringe. F. W. White, New York.—p. 961.

Inferior Meatal Puncture of Maxillary Sinus.—Dintenfass believes that inferior meatal puncture can be performed in almost every case of maxillary sinus and requires little previous experience. There is, however, greater discomfort and danger of air embolism, hemorrhage, shock, pain and emphysema of the soft parts following its employment. Ostial catheterization obviates these drawbacks but it cannot be used as frequently as the inferior meatal puncture because the anatomic configuration will not permit. It also demands a thorough knowledge of the anatomy of the lateral nasal wall, together with some degree of skill and experience. Nevertheless, when it can be accomplished it is performed with such apparent ease as to evoke favorable comment on the part of the patient. In the diagnosis of disease of the maxillary antrum, therefore, ostial catheterization should always be attempted before resorting to the puncture of the inferior meatus. Puncture of the inferior meatus is done in the following manner: The anterior end of the inferior turbinate, and especially that portion of the lateral nasal wall beneath, is painted with a 10 per cent solution of cocaine and epinephrine. A straight needle of the Lichtwitz type is introduced beneath the inferior turbinate until it is about half-way back; then the point is elevated by depressing the hand until it reaches the attachment of the turbinate with the lateral wall of the nose. The needle point is pushed in a direction toward the posterior part of the eyeball of the same side. A sudden penetration with a crackling of bone indicates that the procedure has been successfully accomplished.

Substitute for Cocaine and Procaine in Rhinolaryngology.—Gatewood states that the 2.5 per cent solution of nupercaine has proved to be a most satisfactory agent for causing topical anesthesia prior to such operations as submucous resection, ethmoidectomy, intranasal antrotomy and turbinectomy. The 2.5 per cent solution of nupercaine produces prompt, effective and prolonged anesthesia without signs of local irritation or of systemic intoxication. When used in 1:1,000 solution with epinephrine, nupercaine has been found fully as effective as a 1 per cent solution of procaine hydrochloride for infiltration anesthesia prior to tonsillectomy.

Nupercaine has the advantage over procaine for infiltration in that the duration of the anesthesia produced by the former far exceeds that following injection of the latter; as a consequence, the tendency for postoperative bleeding is less when nupercaine is used as the anesthetic agent. In the routine operative work in the rhinolaryngologic clinic at the Polyclinic Hospital, nupercaine has been employed in 87 submucous resections, 36 ethmoidectomies, 29 intranasal antrotomies, 41 turbinectomies and 212 tonsillectomies. The author describes his method of procedure in each of these operations.

Medical Annals of District of Columbia, Washington

1: 305-332 (Dec.) 1932

*Value and Indications of Intravenous Injections in Internal Medicine. S. U. Marietta, Washington.—p. 305.
Coronary Occlusion: General Review. J. A. Lyon, Washington.—p. 310.
Polycythemia Rubra Vera: Report of Case Treated with Roentgen Ray. J. B. Glenn, Washington.—p. 315.
Some Notes on William Shakespeare's Knowledge of Medicine. S. M. Dodek, Washington.—p. 317.
Dyspnea and Some Mechanisms of Respiratory Regulation. W. F. Hamilton, Washington.—p. 321.

Intravenous Injections.—Marietta reviews the literature and states that intravenous injections are not recent medical conceptions. Their practical use may be dated back to the discovery of iso-agglutinins in the blood in 1901 and the anticoagulant use of sodium citrate in 1914 and 1915. Intravenous injections of all kinds are used more frequently than the rather definite indications for such procedures would require. The reactions occurring with varying degrees of frequency following intravenous injections may be reduced by carefully observing certain well defined rules in the preparation and the mode of administration. Whole blood is preferable to citrated blood for transfusion purposes, but for the inexperienced worker or one without proper assistants, citrated blood is best. Dextrose has the widest application of any intravenous medicament. The strength of the solution to be used is determined by the purpose for which it is to be given. Weak solutions are used when fluid is the main requirement, moderately strong solutions are used when nourishment is desired, and strong solutions are used for the relief of edema and increased intracranial pressure.

Medical Journal and Record, New York

136: 485-528 (Dec. 21) 1932

Recent Advances in Physical Medicine. R. Kovacs, New York.—p. 485.
Vital Considerations in Blood Transfusion. L. Miller, New York.—p. 491.
Congenital Diaphragmatic Hernia with Dextrocardia: Report of Case. C. L. Davidson, Jamaica, N. Y.—p. 492.
Simplified Treatment of Ringworm of Scalp. I. S. Barksdale, Greenville, S. C.—p. 494.
Biophysiologic Appetizers in Nutrition of Child. G. D. Scott, New York.—p. 496.

Medicine, Baltimore

11: 371-535 (Dec.) 1932

*Adrenal Cortical Hormone. W. W. Swingle and J. J. Pfiffner, Princeton, N. J.—p. 371.
Salt and Water Metabolism in Nephritis. J. P. Peters, New Haven, Conn.—p. 435.

Suprarenal Cortical Hormone.—Swingle and Pfiffner used the cortical hormone in the treatment of twenty cases of Addison's disease, three of exophthalmic goiter, one of myxedema, two of diabetes, five of neurasthenia and psychoneurosis, one of myasthenia gravis, four of anorexia nervosa, one of myositis of undetermined origin and one of postural hypotension. The immediate results were excellent in fifteen of the twenty cases of Addison's disease. Five patients died. Two patients are still under treatment. Two patients have been observed over a long period and have been given what the authors believe constitutes an adequate amount of the hormone, but without satisfactory response. In the diseases other than Addison's disease, two patients with exophthalmic goiter felt considerably better subjectively; they showed evidence objectively of less stimulation and some increase in strength, with slowing of the pulse and decrease in the basal metabolic rate from 60 to 30 per cent in one case and from 55 to 28 per cent in the other. In two of the four cases of anorexia nervosa there was slight improvement; appetite developed in one case and an increased ability to take food developed in the other. Results were practically negative in the five cases of neurasthenia and psychoneurosis. None of the other diseases were affected favorably by the cortical hormone. It is important to bear in mind that the clinical results reported by the authors were obtained by use of cortical extracts of relatively low potency. The preparations employed in all their work represented their earlier material, which assayed only 4 to 10 dog units per cubic centimeter. Their recent extracts made from whole glands assay from 40 to 80 dog units per cubic centimeter and hence are many times more potent than the early dissected cortex material used for clinical tests. The matter of dosage with this more potent extract and the daily requirements of patients with Addison's disease have not been worked out as yet. This is a clinical problem that remains to be solved. Judging from their assay experiments on dogs, the quantities of extract heretofore given patients are far greater than is necessary when this more potent preparation is used. The latter type of extract has been clinically tested in three severe cases of Addison's disease with excellent results.

Minnesota Medicine, St. Paul

15: 797-874 (Dec.) 1932

Observations on Arterial Hypertension. R. H. Major, Kansas City, Mo.—p. 797.
Experimental Evidence for Intravenous Vaccine Therapy in Chronic Arthritis. B. J. Clawson, Minneapolis.—p. 804.
Treatment of Chronic Arthritis: Rôle of Intravenous Streptococcic Vaccine. M. Wetherby, Minneapolis.—p. 806.
*Masked Mastoiditis. H. L. Williams, Jr., Rochester.—p. 813.
*Modern Aspects of Surgical Treatment of Urogenital Tuberculosis. G. J. Thomas, Minneapolis, and T. J. Kinsella, Oak Terrace.—p. 821.
Cervical Ribs and Abnormal First Thoracic Ribs. W. C. Carroll, St. Paul.—p. 828.
*Myosarcoma of Rectum. F. W. Rankin and L. M. Larson, Rochester.—p. 833.
Acute Intestinal Obstruction. W. G. Strobel, Duluth.—p. 836.
Consideration of Utility of Radium in Therapeutics. R. E. Fricke, Rochester.—p. 840.
Use of Spinal Anesthesia in Gastric Crisis in Tabes Dorsalis. G. R. Kamman, St. Paul.—p. 845.
*Sodium Amytal Anesthesia in Obstetrics: Report of Its Oral and Intravenous Use in Seventy-Eight Cases. J. J. Swendson, St. Paul.—p. 848.

Masked Mastoiditis.—Williams states that masked or latent mastoiditis, because of its frequency, its insidious type of development, and its lack of the majority of the usual symptoms, is a disease that may present great difficulty in diagnosis. It would seem that the term "latent mastoiditis" can seldom be applied, for it would imply a period completely without symptoms and with no advance of the disease process. There is only one case in the series considered by the author that would apparently meet these criteria. Although the type of case considered by the author has usually been termed latent mastoiditis in the literature, the term "masked mastoiditis," which is occasionally used, seems much better and covers all those cases of mastoiditis presenting unusual difficulty in diagnosis. The principal signs and symptoms of latent or masked mastoiditis are as follows: 1. There is preceding infection of the upper part of the respiratory tract, with usually some symptoms of disease of the middle ear, separated in time from the appearance of symptoms referable to the mastoid process to a greater or lesser extent. 2. Great emphasis is placed by several authors on the general appearance of the patient, who loses weight, is weak and is without appetite. There is also an almost unique expression of apathy, 3. Fever is often present, which may be intermittent or of the continued type. Some of the patients had been treated for several months for typhoid before a sudden discharge from the ear called attention to the true pathologic process present. This mistake was made previous to the general use of the agglutination test for typhoid. 4. Lancinating pain is referred to the occiput, along the zygoma, into the neck and into the temporal region. 5. There is drooping or sagging of the posterosuperior wall of the external auditory canal. 6. A tendency is present for impairment of hearing to be pronounced because of involvement of the inner ear.

Urogenital Tuberculosis.—Thomas and Kinsella point out that the successful surgical treatment of urogenital tuberculosis depends primarily on an accurate diagnosis. This may be accomplished only after repeated complete urologic examinations. Surgical treatment for any type of tuberculosis, except in an emergency, should not be undertaken until the patient has developed a sufficient defense mechanism. The surgical treatment of urogenital tuberculosis is rarely an emergency.

Surgical or medical treatment of tuberculosis should aim at the patient as a whole, not alone at the local lesion. Renal tuberculosis or other urogenital lesions are local manifestations of a constitutional disease. Nondestructive renal tuberculosis, unilateral or bilateral, is a nonsurgical condition and should be treated intensively by medical methods. Tubercle bacilli in one specimen of urine obtained from the kidney pelvis is not in itself an indication for nephrectomy. Unilateral slightly destructive tuberculosis should be treated conservatively under careful observation. Nephrectomy is indicated only when progressive disease is present. Extensive unilateral destructive lesions should be treated by surgical methods. Bilateral destructive renal tuberculosis is not a surgical condition except to stop hemorrhage or to relieve pain and sepsis the result of an obstructed ureter. This condition is not always a hopeless one as ordinarily considered. Under careful medical management it may be compatible with life and useful work for a number of years. Genital tuberculosis is usually an infection of the prostate and epididymis and in a high percentage of patients is associated with a renal lesion. Tuberculous abscesses of the prostate occur frequently. They drain into the posterior urethra and may produce pus and tubercle bacilli in the urine. Tuberculosis of the epididymis is often an acute disease and may be cured by drainage and heliotherapy. When an operation is necessary it should be epididymectomy and not orchidectomy. Surgical treatment of tuberculosis does not cure the disease but is merely a mechanical aid in producing a clinical result. Constitutional treatment of urogenital tuberculosis is important and should supplement the surgical treatment, both before and after operation.

Myosarcoma of Rectum.—Rankin and Larson sum up the characteristics of myosarcoma of the rectum as follows: 1. The lesion occurs most frequently among men in the fifth and sixth decades; only one case of a woman was found recorded in the literature. 2. The tumor is slow growing with late metastasis but with marked tendency to local recurrence. 3. The tumor occurs as a rounded circumscribed mass lying close to the internal anal sphincter and originating in the muscular tissues; later it breaks through into the rectal mucosa and then externally to the perianal tissues. 4. After involvement of the mucous membrane the lesion somewhat resembles carcinoma, but the two can usually be distinguished by careful examination. A myosarcomatous tumor possesses a broad indurated base resulting from considerable growth before the mucosa is reached. The lesion encroaches on the lumen to a greater extent than does carcinoma, resulting in symptoms of obstruction before ulceration and bleeding occur. 5. Regional lymphatic involvement is apparently rare in cases of myosarcoma, but common in the case of carcinoma; death in the former takes place from direct extension to pelvic organs, to obstruction and to local recurrences, and when the blood stream is invaded to generalized sarcomatosis. 6. In the clinical differentiation the chief conditions to be considered are carcinoma, syphilis, tuberculosis and polypi. The early involvement of the mucous membrane is carcinoma, resulting in ulceration, bleeding, infection and frequently cachexia, in contrast to that of myosarcoma, in which constipation, straining and urinary difficulties are the first symptoms. 7. Myosarcoma exhibits a marked tendency to local recurrences after excision. This was evidenced in each of four cases reported by the authors and it would seem that radical treatment by wide excision locally is warranted. Furthermore, it seems unlikely that much benefit can be derived from radiotherapy even in large doses, so that resection is, no doubt, the treatment of choice.

Sodium Amytal Anesthesia in Obstetrics.—According to Swendson, the intravenous administration of comparatively small, individualized doses of sodium amytal gives more uniform and satisfactory pain relief during labor than when the drug is given orally. Oral administration of somewhat larger doses, however, because of its simpler and safer technic, should be used whenever possible, since it can be supplemented by intravenous injections of the drug if satisfactory relief from pain is not obtained. Either method of administration, when supplemented by an inhalation anesthetic, produces gratifying amnesia and safe and adequate relief from pain during most labors. Neither the oral nor the intravenous methods of administration produce deleterious effects on the infants.

Nebraska State Medical Journal, Lincoln

17: 505-544 (Dec.) 1932

Symposium on Cerebral Birth Injuries: Pathogenesis and Clinical Syndromes. G. A. Young, Omaha.—p. 505.
Prevention of Intracranial Injury. W. H. Taylor, Lincoln.—p. 510.
Early Diagnosis and Treatment of Intracranial Hemorrhage in the New-Born. C. Moore, Omaha.—p. 513.
Purpuras. A. S. Rubinitz, Omaha.—p. 518.
Traumatic Surgery in Rural Hospital. C. G. McMahon, Superior. —p. 521.

New England Journal of Medicine, Boston

207: 863-912 (Nov. 17) 1932

Essential Pathology Found in Diphtheria, Scarlet Fever and Tuberculosis, with Especial Reference to Involvement of Heart Based on Review of Necropsy Cases at Boston City Hospital for the Past Forty Years. R. L. Irwin, Boston.—p. 863.
The Heart in Diphtheria and Scarlet Fever. E. H. Place, Boston.—p. 864.
The Heart in Pulmonary Tuberculosis. J. B. Hawes 2d, Boston.—p. 874.
Conservative Kidney Surgery. A. Riley, Boston.—p. 877.
Treatment of Acute Anterior Poliomyelitis with Nonspecific Protein. C. L. Thenebe and V. P. Cenci, Hartford, Conn.—p. 880.
The Sanatorium Child. L. A. Alley, Middleboro, Mass.—p. 884.

207: 913-962 (Nov. 24) 1932

Walter E. Fernald Plan for the Examination of Retarded School Children. N. A. Dayton, Boston.—p. 913.
Venous Pressure. W. Evans, Detroit.—p. 934.
*Etiology of Eczema. W. J. Macdonald, Boston.—p. 940.
Solid Double Rudimentary Uterus with Absence of Cervix and Vagina. E. K. F. Ronka, Boston.—p. 945.

Etiology of Eczema.—According to Macdonald, exogenous eczema can be diagnosed by patch tests, but the investigator will undoubtedly experience many failures. The patch test is of particular value in industrial eczema. The scratch test is valuable for the elucidation of dietetic problems in eczema. Infantile eczema is a dietetic problem. The Prausnitz-Küstner reaction proves the presence of sensitizing antibodies. Bacterial sensitization and glycosuria can cause eczema. The epidermophyton simulates eczema in the viciousness of its subjective signs. Objectively one mimics the other, but the trained eye can classify them. In doing a patch test, the supposedly offending substance is applied to a small square of damp linen. This is laid on the skin and covered with a larger square of rubber tissue, which itself in turn is finally overlaid with a still larger square of adhesive tape. The rubber tissue is necessary because adhesive tape, being a primary irritant, might confuse the reading, which is done from twenty-four to forty-eight hours later. These patches are most conveniently applied to the back. All suspected articles should be tested. It is of real value only in acute eczema. The scratch test is the application to small cutaneous abrasions of the proteins of various foods, pollens, and so on. All scratches should be equal in size. Blood should not appear. The knife should be sharp; a special type can be obtained from instrument makers. Normal skin is chosen for the tests. The response may occur in half an hour, but a six and twenty-four hour reading is desirable. Close observation and comparative readings are necessary for the correct interpretation of what constitutes a reaction. A reaction is positive not because it attains a certain size but because it is objectively more sizable than a control or other nonreaction substance. It is customary in performing these tests to scratch through a drop of tenth normal solution of sodium hydroxide that contains the protein for that test.

New Jersey Medical Society Journal, Orange

29: 893-990 (Dec.) 1932

Medical and Surgical Problems of Larynx and Hypopharynx. H. B. Orton, Newark.—p. 893.
Lung Complications Following Medical or Surgical Procedures on Upper Respiratory Tract. B. S. Pollak and B. P. Potter, Secaucus. —p. 898.
Complications Following Operations on Upper Respiratory Tract. R. H. Dieffenbach, Newark.—p. 908.
Heart in Relation to Physical Education. Mabel G. Lesher, Camden. —p. 913.
Keeping Schools Open When Poliomyelitis Is Epidemic. J. Schapiro, Union City.—p. 918.
Practical Aids to Diagnosis and in Surgical Management of Meningitis from Ear or Nose. W. P. Eagleton, Newark.—p. 924.
Study of Negro Infant Mortality Rate and What the Well-Baby Clinics Are Doing to Lower It. C. S. Janifer, Newark.—p. 932.
Deaths in First Month of Life. J. Levy, Newark.—p. 935.
Collapse Therapy in Pulmonary Tuberculosis. S. B. English and P. Geary, Glen Gardner.—p. 938.
Bone Metastasis in Breast Cancer. E. E. Downs, Woodbury.—p. 957.
Pathology of Living Human Eye and Its Clinical Recording by Color Photography. L. D. Redway, Albany, N. Y.—p. 958.

Northwest Medicine, Seattle

31: 549-594 (Dec.) 1932

*Diagnosis and Treatment of Atypical Hyperthyroidism. F. W. Rankin and S. F. Haines, Rochester, Minn.—p. 549.
*Interruption of Sympathetic Pathways for Relief of Pain in Extremities. F. L. Reichert, San Francisco.—p. 554.
Base Forming and Salt Poor Diets: Prophylactic and Therapeutic Value as Demonstrated in Europe. C. U. Moore, Portland, Ore.—p. 557.
Mortality in Cystoscopy. C. D. Donahue, Eugene, Ore.—p. 561.
Outline of History of Medicine in Pacific Northwest. O. Larsell, Portland, Ore.—p. 564.

Atypical Hyperthyroidism.—Rankin and Haines point out that the diagnosis of hyperthyroidism is comparatively easy in most cases. There are, however, many cases in which the diagnosis is difficult even when hyperthyroidism is being carefully considered. Difficulties are most commonly met in conjunction with or in distinguishing from fatigue states, essential hypertension, Parkinson's syndrome and chronic encephalitis without marked manifestations of Parkinson's syndrome. Many emergency cases of heart failure present opportunity for careful discrimination as to possible hyperthyroidism, and, if the condition is found, dramatic results from treatment are often obtained. Severe gastro-intestinal disorders with nausea and vomiting may be the chief manifestations of the crises of exophthalmic goiter. Coma may be precipitated in cases of diabetes by even mild degrees of hyperthyroidism. Hyperthyroidism complicating other surgical conditions has great significance and is almost invariably a contraindication to any operation other than for hyperthyroidism until the hyperthyroidism has been brought under control, as otherwise severe and possibly fatal postoperative reactions may occur. Mild hyperthyroidism may so increase the severity of various associated diseases that it must be universally kept in mind. In cases in which the patients are not seriously ill, perhaps the most frequent difficulties of diagnosis are met in association with fatigue states. Many patients with hyperthyroidism have neurotic tendencies. Many neurasthenic patients present evidences, both symptomatic and physiologic, which easily may be interpreted as being the phenomena associated with hyperthyroidism. The not infrequent elevation of the basal metabolic rate of nervous patients with normal thyroids has its origin in physiologic disturbances that produce in those patients physical disturbances simulating, if not identical with, some of the phenomena of hyperthyroidism. The patient who cannot attain a condition of physiologic rest sufficient to allow the metabolic rate to be normal at the time of the test is likely to be in a similar state at the time of clinical examination. In most cases the nervous phenomena of hyperthyroidism, and particularly of exophthalmic goiter, are obviously different from those resulting from anxiety, lack of assurance, and so forth, but in the mild case there may be a good deal of difficulty in the differentiation. Clinical signs may be very vague. The intoxication of hyperfunctioning adenomatous goiter, physiologically identical with the intoxication produced by ingestion of sufficient quantities of desiccated thyroid, is usually not noticed by the patient until a rather advanced stage is reached. Mild cases of exophthalmic goiter are being seen more frequently, and exophthalmos and considerable enlargement of the thyroid are being seen less frequently. Each of the last few years has brought an increasing need for more meticulous care in observation to determine the presence of hyperthyroidism. Series of tests of the basal metabolic rate instead of single tests, and the determination of the effect of iodine in cases of neurosis, essential hypertension or Parkinson's syndrome in which exophthalmic goiter is suspected, are valuable aids to differential diagnosis. Hyperthyroidism should be considered in cases of cardiovascular disturbances, atypical gastro-intestinal disturbances with vomiting or diarrhea and cases of diabetes with increased insulin requirements, even though other apparently sufficient causes for the disturbances may be present.

Pain in Extremities.—A number of conditions in which pain in the extremity cripples an individual have been treated by Reichert by interruption of the sympathetic pathways to the affected limb. Although grateful improvement or relief of this symptom can be secured, it must be borne in mind that the underlying pathologic process still exists and efforts must be made to arrest its progress. Since the dominant factor in these conditions is circulatory, protection of the limb from cold must be continued even after the sympathetic block. Selection of favorable cases is made by a preliminary paravertebral procaine hydrochloride injection of the sympathetic chain, which enables the patient to be ambulatory and to assist the physician, by endeavoring to induce pain, to judge whether permanent interruption would be beneficial. The author has obtained improvement following interruption of the sympathetic pathways in over forty cases for conditions such as Raynaud's disease, scleroderma, xeroderma, selective arthritic cases with obvious vasomotor instability, thrombo-angiitis obliterans and arteriosclerotic claudication.

Occupational Therapy and Rehabilitation, Baltimore

11: 409-476 (Dec.) 1932

Value of Professional Organization. E. Muriel Anscombe, St. Louis.—p. 409.
Library in Occupational Therapy. J. K. Allen, Kings Park, N. Y.—p. 415.
Directed Industrial Therapy as Aid to General Practitioner and Specialist. G. K. Collier, Rochester, N. Y.—p. 425.

Ohio State Medical Journal, Columbus

28: 809-880 (Dec.) 1932

Angina Pectoris. J. P. Anderson, Cleveland.—p. 829.
Surgery of Sympathetic Nervous System. M. M. Zinninger, Cincinnati.—p. 834.
Congenital Absence of Abdominal Muscles: Case Reports. E. H. Baxter, Columbus.—p. 840.
Some Present Day Ideas Concerning Heart Disease from Public Health Point of View. J. E. Benjamin, Cincinnati.—p. 843.
Food Allergy. K. D. Figley, Toledo.—p. 848.

Public Health Reports, Washington, D. C.

47: 2245-2266 (Dec. 2) 1932

*Plasmochin in Malaria Prevention: Experiments in Alabama. J. N. Baker and D. G. Gill.—p. 2245.
Recent Court Decisions on Milk Control. J. A. Tobey.—p. 2250.

47: 2267-2295 (Dec. 9) 1932

Standardization of Morbidity Reporting and Development of Morbidity Reporting Area. R. C. Williams.—p. 2267.
Bacterium Granulosis Conjunctivitis Compared with that Produced from Human Trachoma: Transmissibility of Granular Condition Induced in Macacus Rhesus Monkeys by Inoculation with Cultures of Bacterium Granulosis Contrasted with that Induced in Same Species by Direct Transfer from Human Trachoma. Ida A. Bengston.—p. 2281.

Plasmochin in Prevention of Malaria.—Baker and Gill tested the value of plasmochin in Alabama by administering it at regular intervals to all the people in a certain area and observing the effect on the incidence of malaria during the season. They selected two rural areas for the purpose of the experiment; one was in Macon County and the other in Montgomery County. In the 1930 season every person in the demonstration areas received one tablet of plasmochin compound per week (containing 0.01 Gm. of plasmochin and 0.125 Gm. of quinine sulphate). In 1931 the dosage of plasmochin was increased to one tablet twice a week. The results of their experiments suggest that plasmochin compound in a dosage of from one to two tablets per week (each tablet containing 0.01 Gm. of plasmochin and 0.125 Gm. of quinine sulphate), when administered to all the inhabitants of a district, will materially lessen the incidence of malaria. Such a dosage is both safe and convenient. If further experience should confirm these results, it would seem that a valuable addition has been made to the present methods of malaria control, which therapeutic control may be further enhanced through scientific chemical study of the potentialities embraced in plasmochin.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

40: 581-640 (Nov.) 1932

Precancerous Lesions of Breast. A. R. Kilgore, San Francisco.—p. 581.
Skin Temperature Studies: II. Cases Characterized by Organic Lesions of Arteries. W. K. Livingston, Portland, Ore.—p. 587.
Intestinal Obstruction from Gallstone. P. K. Gilman, San Francisco.—p. 594.
Anomalous Renal Vessels and Their Surgical Significance. W. J. Carson, Milwaukee.—p. 597.
Physiology of Parathyroid Glands. J. B. Collip, Montreal, Canada.—p. 602.
Correlation of Clinical and Pathologic Diagnoses of Toxic Diffuse Goiter (Graves' Disease). A. T. Bowers, Dayton, Ohio.—p. 607.
Determination of Operability in Exophthalmic Goiter. L. Seed, Chicago.—p. 613.
Presentation of Reports of Three Cases of Thyroid Disease. E. M. Eberts, Montreal, Canada.—p. 619.
Preoperative Prognosis of Thyroid Disease. F. Deneen, Bloomington, Ill.—p. 627.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

55: 479-618 (Dec.) 1932

Athetosis. P. C. Bucy and D. N. Buchanan.—p. 479.
Cell Station of Vater-Pacinian Corpuscle in Retroperitoneal Tissue: Afferent Peripheral Pathway in Sympathetic. D. Sheehan.—p. 493.
*Distortions of Visual Fields in Cases of Brain Tumor: Field Defects and Hallucinations Produced by Tumors of Occipital Lobe. G. Horrax and T. J. Putnam.—p. 499.
Note Concerning Relation of Frontal Lobes to Posture and Forced Grasping in Monkeys. J. F. Fulton, C. F. Jacobsen and Margaret A. Kennard.—p. 524.
*Syphilis of Nervous System in the Sudanese. T. F. Hewer.—p. 537.
Cerebral Involvement in Head Injury: Study Based on Examination of Two Hundred Cases. W. R. Russell.—p. 549.

Distortions of Visual Fields in Brain Tumor.—According to Horrax and Putnam, intracranial tumors confined to the occipital lobes are comparatively rare, occurring in only forty instances in a series of 1,881 verified intracranial growths. In an extremely large proportion (73.6 per cent) of patients having tumors confined to or chiefly compressing the occipital lobe, fields of vision show a contralateral, homonymous hemianopsia in which the central fibers remain unaffected. This is particularly true of meningiomas situated at the posterior end of the occipital lobe. An upper quadrantal homonymous defect of the visual fields was not disclosed in any case of the series, and the authors therefore regard its occurrence as rare in strictly occipital tumors. Visual hallucinations occurred in six patients (15 per cent) before operation for tumor removal. Careful investigation of these supports the idea that complex "formed" images are not provoked by occipital tumors. The differential diagnosis between temporal and occipital tumors may be impossible without ventriculography. The high incidence of spared central fibers, together with the rarity of upper quadrantal defects in the latter, are helpful, since bisection of the macula and upper quadrantanopsia are frequent in the former. Other differential features are the relatively greater tendency to the true quadrantic form (bounded by the horizontal meridian) in defects due to temporal lobe lesions, and their greater incongruity as compared to those due to tumors of the occipital lobe.

Syphilis of Nervous System in the Sudanese.—Hewer reports the results of a neurologic survey of 400 syphilitic Sudanese. Routine examination of the cerebrospinal fluid showed a high incidence of abnormality. Clinical nervous disease was present in 6.75 per cent; it consisted of gummatous or vascular lesions in most cases, and there was only one that was possibly a primary optic atrophy. In the discussion the author suggests that the absence of parasyphilitic infections is due to an acquired cell immunity, associated with an allergic state, and the occurrence of such a reaction is interpreted as a stage in the development of syphilis in the community.

British Journal of Dermatology and Syphilis, London

44: 521-568 (Nov.) 1932

Alleged New Phase in Early Syphilis. E. T. Burke.—p. 521.
New Phase in Early Syphilis: Reply to Dr. Burke. J. A. Drake and M. S. Thomson.—p. 534.
*Lupus Sarcoma: Fatal Case. W. J. O'Donovan.—p. 538.

44: 569-614 (Dec.) 1932

Parapsoriasis. J. M. H. MacLeod.—p. 569.
Note on Parapsoriasis. H. MacCormac.—p. 576.
Development of Callosities, Corns and Warts. A. Whitfield.—p. 580.

Lupus Sarcoma.—O'Donovan reports the case of a woman dying at the age of 59 of sarcoma cutis, in which the malignant growth appeared in a lupus scar of long duration that had been heavily treated with roentgen rays, and who for about two months before death complained of weakness, pain below the heart and shortness of breath. There was fluid in the right thoracic cavity. The fluid showed leukocytes and endothelial cells. The culture was sterile. Roentgenograms showed secondary deposits in both lungs. The author has not heretofore observed a similar case in practice or in the literature. He concludes that there is a recognized close similarity in the clinical development of occupational tar and roentgen carcinomas; experimentally both carcinomas and sarcomas have been produced in animals by the application of the same irritant; hence, as lupus carcinoma has increased in frequency since roentgen therapy was instituted, there was an antecedent probability that sarcoma might develop under similar conditions.

British Journal of Ophthalmology, London

16: 705-768 (Dec.) 1932

Anterior Dialysis of Retina: Disinsertion or Avulsion at Ora Serrata. J. R. Anderson.—p. 705.
John Zachariah Laurence: A Belated Tribute. A. Sorsby.—p. 727.
Iridencleisis and Trap Door Iridectomy in Treatment of Glaucoma. T. H. Butler.—p. 741.
Hand Campimeter for Confrontation Test. G. Mackay.—p. 750.

British Journal of Physical Medicine, London

7: 153-172 (Dec.) 1932

Radiothermy: Fever Induced by Short Radio Waves. W. Bierman.—p. 155.
Hydrologic Methods in Treatment of Rheumatic Syndrome. M. B. Ray.—p. 158.
Effect of South African Climate on Pulmonary Tuberculosis and Pretuberculous Cases. P. Allan.—p. 161.

Journal of Tropical Medicine and Hygiene, London

35: 353-368 (Dec. 1) 1932

*Hexylresorcinol in Treatment of Ancylostoma Duodenale Infection. A. G. Biggam and P. Ghalioungui.—p. 353.
Anaeromyces Bronchitica: Its Relationships and Possible Significance in Pulmonary Affections. E. T. Thompson.—p. 354.
Epidemic and Endemic Yellow Fever. W. H. Hoffmann.—p. 359.

35: 369-384 (Dec. 15) 1932

Blood Grouping of Central Australian Aborigines, 1931 Series. J. B. Cleland.—p. 369.
Principles of Early Treatment of Tropical Disease, with Especial Reference to Malaria in Natal. F. G. Cawston.—p. 371.
Some Little Known Micrococci. A. Castellani.—p. 372.
Detection of Lactosuria by Bacterial Method of Castellani and Taylor. T. Standring.—p. 375.

Treatment of Ancylostoma Duodenale Infection.—The results obtained by Biggam and Ghalioungui in a series of fifty carefully controlled cases of Ancylostoma duodenale infection by the administration of hexylresorcinol in an attempt to eradicate this infection were found to be unsatisfactory, only twenty-six patients being cured, even when repeated administrations of as much as 2 Gm. doses had been employed and great care exercised in the limitation of the diet. No serious toxic symptoms were observed to occur among these cases. The difference in results obtained in the authors' series of cases compared with those of the American observers may be accounted for by the fact that in Egypt one is dealing with Ancylostoma duodenale and not Necator americanus. Hexylresorcinol can, however, be of definite value in cases of severe ancylostoma anemia in which debility is marked, if one uses it as a preliminary method of treatment with a view to diminishing the intensity of the infection and improving the condition of the patient prior to the employment of other more potent drugs.

Lancet, London

2: 1317-1368 (Dec. 17) 1932

Surgical Disorders of Urinary Tract in Children: Report of Twenty-One Consecutive Surgical Cases. H. P. Winsbury-White.—p. 1317.
*Treatment of Nervous Disorders Accompanying Anemia by Intensive Iron Therapy. W. Sargant, with remarks by F. S. Langmead.—p. 1322.
Albuminuria in Pregnancy and Its Treatment. J. V. O'Sullivan.—p. 1326.
Toxemia of Pregnancy Treated with Alkalis and Calcium. A. Daly and W. C. Armstrong.—p. 1328.

Iron Therapy in Nervous Disorders of Anemia.—Sargant treated nine patients showing varying degrees of nervous disorder following anemia by large doses of iron. After an initial period of from two to three months on 150 grains (9.75 Gm.) of pills of ferrous carbonate each day, it was found advisable to continue with at least 40 grains (2.6 Gm.) daily, if a relapse was to be avoided. All the patients improved in from three weeks to one month from the commencement of treatment. Six cases were classed as subacute combined degeneration, and the remaining three showed evidence of severe posterior column loss or peripheral neuritis. In five, iron either restored or maintained the blood count, thus demonstrating the existence of subacute combined degeneration and peripheral neuritis with simple achlorhydric anemia. In cases accompanying a primary anemia, in which liver treat-

ment had previously been given, substitution of iron for liver led to a fall in the blood count, but an improvement in the nervous phenomena occurred. The author reports five cases in which the degree of nervous involvement complicating the anemias bore no relation to the severity of the anemia and the nervous phenomena steadily improved if large doses of iron were given, despite a rising or falling blood count. Therefore it seems not unreasonable to surmise that the various nervous phenomena associated with alimentary disturbances may be found to fall into one large group and may respond to iron therapy. It is his intention, when possible, to put this hypothesis to the test. He has not, of course, overlooked the fact that the results obtained may not be due entirely to the large doses of iron but to some impurity in the ferrous carbonate preparation.

Medical Journal of Australia, Sydney

2: 735-764 (Dec. 17) 1932

*Results of Operative Treatment of Chronic Glaucoma. E. L. Gault.—p. 735.
Abortion. R. Worrall.—p. 739.
Pathologic Fractures. P. L. Hipsley.—p. 743.
Blood Transfusion: Apparatus for Transfusion of Citrated Blood. E. H. Stokes.—p. 746.
Eucalyptol or Cineole. J. MacPherson.—p. 750.

2: 765-794 (Dec. 24) 1932

Favus in Mice and Men. J. I. Connor.—p. 765.
Anesthesia from General Practitioner's Point of View. M. C. Lidwill.—p. 767.
Laryngeal Diphtheria. G. C. Willcocks.—p. 770.
Simulation of Pituitary Disease by Intracranial Lesions. H. R. Dew.—p. 771.

Chronic Glaucoma.—According to Gault, there is no such disease as simple chronic glaucoma without increased intraocular pressure. There is no risk of precipitating blindness if operation is undertaken in advanced cases with a field approaching closely the fixation point. No lasting benefit can be expected from miotics and general treatment alone. One may regard operation as curative, or at least one may assert that it offers a means of greatly delaying the progress of the disease in a large majority of cases and that it should be undertaken as soon as a diagnosis has been made.

South African Medical Journal, Cape Town

6: 755-790 (Dec. 10) 1932

Epidemiology of Meningitis in South Africa. D. Ordman.—p. 757.
Statistical Rating of Insurance Risks. J. P. MacLaren.—p. 765.
Insurance Value of One or Both Eyes or Limbs. L. J. Johnson.—p. 770.
Sulphur as Prophylactic in Malaria. W. M. Montgomery.—p. 771.
Modern Developments in Treatment and Diagnosis: II. Radiology and General Practitioner. F. H. Dommisse.—p. 772.

Tubercle, London

14: 97-144 (Dec.) 1932

Investigations on Catalsan. F. Gottdenker.—p. 97.
Acute Silicosis. P. Heffernan.—p. 109.
Activity in Pulmonary Tuberculosis as Determined by Comparative Study of Roentgenograms, Blood Sedimentation and Leukocytic Reactions. J. Duffy.—p. 113.

Japanese Journal of Gastroenterology, Kyoto

4: 231-324 (Dec.) 1932

Studies in Photodynamic Hemolytic Action of Bilirubin: Report III. Influence of Added Substances on Photodynamic Hemolytic Action. K. Saeki.—p. 231.
Id.: Report IV. Microscopic Observations of Photodynamic Hemolytic Action and Its Time Relation. K. Saeki.—p. 244.
Experimental and Clinical Investigation on Affinity of Bilirubin for Erythrocytes: Report III. Affinity for Erythrocytes of Various Heterogeneous Animals and Comparative Clinical Observation on Affinity for Erythrocytes of Jaundiced and Normal Subjects. K. Saeki and T. Maeda.—p. 255.
Behavior of Sugar Toward Secretion of Gastric Juice. M. Matsuyama.—p. 262.
Influence of Introduction of Glucose into Intestine on Secretion of Gastric Juice. M. Matsuyama.—p. 273.
Statistical Investigation of Patients Operated on for Cholelithiasis. H. Yagata.—p. 280.
Experimental Studies on Relation Between Liver Function and Amounts of Glycogen, Fat and Nitrogen in Liver: Reports I to VII. T. Hayashi—p. 287.
Acquisition of Antitoxic Character of Liver. S. Kimura and I. Isoda.—p. 298.
Influence of Fat Soluble Vitamin on Amount of Cholesterol Bodies in Blood in Rabbits. S. Kusaka.—p. 304.
Anatomic Histologic Studies in Rabbits to Which Excess of Fat Soluble Vitamin Was Administered. S. Kusaka and T. Maruno.—p. 312.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

49: 1-28 (Jan. 23) 1933

Slow, Malignant Endocarditis of Interventricular Communicating Orifice. V. Audibert, A. Raybaud, E. Giraud-Costa, M. Audier and C. Mattei.—p. 7.
Fatal Case of Spirochaetosis Icterohaemorrhagica. M. Bariéty and M. Deparis.—p. 10.
Superacute Meningitis in Anthrax: Case. Hamant, Drouet, Chalnot and J. Simonin.—p. 14.
Nondiabetic Generalized Xanthoma in Patient with Albuminuria. E. Schulmann and G. Lévy-Coblentz.—p. 15.
*Clinical Sign of Calcification of Pericardium: Protodiastolic Pericardiac Vibration. C. Lian, M. Marchal and J. Pautrat.—p. 20.

Calcification of Pericardium.—Under the name protodiastolic pericardiac vibration, Lian and his associates describe a heart sound the presence of which should lead the clinician to suspect calcification of the pericardium and to practice a minute roentgenoscopic examination to confirm the suspicion. The authors have heard this sound in two cases in which a pericardiac calcification was roentgenologically determined. It is a strong, vibrating sound, much louder than the normal heart sounds, with which it constitutes a rhythm of three beats. It is produced immediately after the second sound; its maximum intensity is at the apex or at the juxtaxiphoid region and it is heard in the entire precordial region and up to the suprasternal fossa in auscultation of the aorta, and even in the supraclavicular region in auscultation of the subclavian artery. It is differentiated from the sound of a protodiastolic gallop by its intensity and vibration; and from the third heart sound, also a protodiastolic phenomenon, by its greater strength, vibration and constancy. The reduplicated second sound of mitral stenosis, if it is loudest in the region of the apex, may be confused with the pericardiac vibration although its vibrancy is less accentuated, and the differential diagnosis may depend on roentgenologic examination. In discussing roentgenologic diagnosis the authors say that the pericardiac calcifications are best seen in the left anterior oblique position; examination in several positions permits differentiation from pulmonary or pleural calcification, even if the cardiac pulsations have been transmitted to them.

Riforma Medica, Naples

48: 1900-1938 (Dec. 10) 1932

*Meltzer-Lyon Test and Cholecystography in Diseases of Biliary Tract. D. Santorsola and V. Gandolfi.—p. 1903.
Some Cases of Traumatic Lesions of Femur. P. Cammarano.—p. 1908.
Serotherapy in Acute Peritonitis. A. Pellegrini.—p. 1914.
*High Grade Secondary Anemia Due to Mercury Poisoning: Case. G. Dalla Torre.—p. 1926.

Diseases of Biliary Tract.—Santorsola and Gandolfi cite their experiences with the combined Meltzer-Lyon drainage and cholecystography in four groups of patients. Group I comprised eight cases of altered function of the biliary excretion with lack of B bile, corresponding to serious cholecystic, pericholecystic and adhesive lesions, with the presence of calculi in the common bile duct and in the cystic duct. In group II the Meltzer-Lyon test was not reliable because of the existence of gastroduodenal lesions. In group III (consisting of twenty patients, fourteen of whom were operated on) there was a correspondence between the Meltzer-Lyon test and the cholecystographic reports. Group IV consisted of two cases: in one case the presence of a large echinococcus cyst of the liver was enough to justify an abnormal cholecystogram; in the other the walls of the gallbladder did not present considerable lesions and it was probable that the dye was collected and concentrated in the gallbladder, which, hindered by the initial inflammatory processes of the mucosa (strawberry gallbladder), could not respond to the stimulus exercised by a solution of magnesium sulphate. The authors state that the cholecystography was greatly facilitated by oral administration of the dye (tetraiodophenolphthalein) in preference to intravenous injection. They found that a gallbladder shadow, modified with a certain regularity after a normal lapse of time, signified a normal gallbladder, and that a failure to undergo change in form signified a nonfunctioning gallbladder. In the presence of the gallbladder shadow, cholecystography is still capable of revealing lesions of the gallbladder even though these do not interfere with the functional capacity of the gallbladder, in which case the degree of intensity and the uniformity of the shadow and its contours constitute the criteria. Drainage with the Meltzer-Lyon test is often

difficult because of the reluctance of some patients and the nervous reflex excitability in others. Anatomic and functional alterations of the stomach and duodenum render the method difficult and painful. The authors observed that, when a negative cholecystogram was obtained, there was likewise a negative result with the Meltzer-Lyon test. Every time they obtained B bile they had a normal roentgenogram, and operation established that the gallbladder was functioning; every time B bile was not found, the visualization of the gallbladder was poor and lesions were found at operation. The authors believe that only when there is a quick response to the minimum stimulus will one succeed in recognizing the maximum limit of functional capacity of the gallbladder. Along with cholecystography, the Meltzer-Lyon test must be considered as a functional test of the gallbladder. The combination of the two proves practical in revealing functional disturbances of the gallbladder, a sure sign of anatomic lesions.

Anemia Due to Mercurial Poisoning.—Dalla Torre cites the case of a man, aged 39, with high grade secondary anemia approaching a pernicious form as a result of mercurial treatment for syphilitic infection. Mild anemia was first demonstrated during gastro-enteric disturbances following arsphenamine treatment and was again manifested two years later during an intense mercurial treatment with resulting stomatitis and pharyngitis. The author states that the patient had a particularly and perhaps congenitally sensitive hematopoietic system and that its generative activity had been exhausted by the previous toxic action of the arsphenamine. He explains the two years duration of the anemia by the persistence of the toxic action of the mercury accumulated in the organism and by the state of hypofunction occasioned in the bone marrow by the arsphenamine poisoning itself. The author states in conclusion that (1) the same caution exercised in other mercurial therapies must be applied in a case of this type, particular attention being paid to the patient's reaction to the medium employed, and (2) blood transfusions are important in the treatment of serious subacute anemia as in acute anemia, because they raise the blood elements to a point compatible with life and permit the creation of organic conditions by a renewal of the hematopoiesis injured by various toxins.

Dermatologische Wochenschrift, Leipzig

96: 45-88 (Jan. 14) 1933. Partial Index

*Skin Nevi as Source of Anthropologic Knowledge. F. Šamberger.—p. 45.
Primary Tuberculous Complex of Skin. R. Bezecny.—p. 58.
*Cure of Impetigo Herpetiformis by Blood Transfusion. Prokoptschuk and Baranowsky.—p. 66.
Primary Syphilitic Lesion in External Auditory Meatus. K. Preis.—p. 67.

Skin Nevi as Source of Anthropologic Knowledge.—Šamberger reviews Šulc's studies on the nature and origin of two abnormal formations of the human skin, the lentigines and vascular moles. According to this author, the lentigines of human beings are remains of tactile organs, which in earlier developmental stages had the form of strongly pigmented warts with tactile hairs, and he considers the vascular nevi as increased sinuses that are the remainders of former tactile hairs. He describes and discusses the naevus acanthosiformis. The histologic examination of this form of nevus convinced him that it is an atavistic formation dating back to the period of phylogenic development when the skin served as a respiratory organ; that is, to the amphibious stage. He considers the observation of Šikl, who found mucus secreting glands in cutaneous neoplasms, a proof of the amphibious ancestry of human beings. He points out that in members of the white race there occur nevi with and without hairs, while hairy nevi do not occur in Negroes. He thinks that the skin of the white race developed from the skin of the amphibians by way of a land inhabiting species with hairy skin. Negroes are free from hairy nevi because in their phylogenesis only one type of skin, that of the amphibians, is present.

Cure of Impetigo Herpetiformis by Blood Transfusion.—Prokoptschuk and Baranowsky relate the clinical histories of two women, aged 32 and 28. In the first woman the impetigo herpetiformis developed toward the end of pregnancy. The steady exacerbation of the disease manifestations and the development of visual disturbances made it necessary to induce labor, and, although after delivery there was a gradual decrease in the cutaneous manifestations and in the fever, the woman finally died. In the second patient the impetigo herpetiformis was extremely painful, spread eccentrically and was accompanied by a typhoid-like condition, with high temperatures, attacks of chills, pains in the arms and legs, and headaches. Menstruation had not taken place for several months, but the woman was not pregnant. Because the skin disease spread more and more and the patient became steadily weaker, blood transfusion was tried. The result was that on the third day after the transfusion of 370 cc. the temperature dropped considerably, and on the following day it was normal. The further spreading of the skin disease ceased and the scabs fell off. Several weeks later, the patient was completely cured. This favorable result of blood transfusion in a disease that is refractory to all other treatments induced the authors to report these two cases. They think that neither pregnancy nor disorders in the genital sphere are the cause of impetigo herpetiformis, but that sepsis is the causal factor. They base this opinion on the observations during the postmortem examination of the first reported case, particularly on the changes in the spleen that are typical of sepsis.

Deutsches Archiv für klinische Medizin, Berlin

174: 449-580 (Jan. 12) 1933

Iodine Metabolism in Human Organism. A. W. Elmer.—p. 449.
Physiology and Pathology of Oxalic Acid Metabolism. R. Jürgens and G. Spehr.—p. 456.
Colloid Osmotic Pressure. E. Kylin.—p. 468.
*Unusual Form of Disease of Bones and Joints ("Osteo-Arthropathia Micro-Atrophicans"). M. Blum.—p. 474.
Luciani's Periods—Adams-Stokes Attacks. A. Jervell.—p. 482.
*Treatment of Progressive Muscular Dystrophy and of Similar Muscular Disturbances by Glycine. A. T. Milhorat.—p. 487.
Electrical Irritability of Dystrophic Muscles. J. D. Achelis and H. Büssow.—p. 518.
Clinical Examination and Action of Medicaments for High Blood Pressure. A. Krumeich.—p. 527.
Cerebral Changes in Various Forms of Uremia, with Consideration of Their Pathogenesis. G. Bodechtel.—p. 541.
Technic of Measurement of Venous Pressure. B. Groák.—p. 569.

Unusual Form of Disease of Bones and Joints.—Blum reports the clinical history of a woman, aged 48, whose anamnesis revealed that nearly all the members of the family had a predisposition to rheumatic disorders. The clinical aspects of the diseased joints and the anamnesis indicated a primary chronic arthritis. However, the roentgenologic aspects of the bones made it appear probable that in addition to the arthritic changes of the joints a pathologic process existed that involved the entire system of the tubular bones, for they were unusually narrow, the cortical portion as well as the spongiosa being involved. Examination of the calcium metabolism revealed that the elimination of calcium in the urine was low whether the diet was normal or had a high calcium content. The blood calcium values were on the upper limit of normality and were noticeably increased after a diet with a high calcium content. The minimal excretion of calcium in the urine probably was compensated for by the elimination of larger quantities in the feces. Other chemical physiologic investigations revealed an increased cholesterol content of the blood. The patient stated that her hands and feet, which were unusually small, had become so since the development of the arthritic disorders. Endocrine disturbances were absent. Atrophy and narrowing of the bones sometimes occurs in sclerodermia and in certain nervous disorders, but conditions like these could be excluded in the patient under observation. Osteo-arthropathia micro-atrophicans is the term he applies to the condition. He thinks that the simultaneous existence of primary chronic arthritis with systemic disease of the tubular bones makes a common etiology probable. Katz has called attention to a connection between the basal ganglions and arthritis, and the author believes that in the reported case the disorder of the bones and joints can likewise be traced to central processes. He assumes that the injurious influences are active in the mesencephalon as the controlling center of trophism and of mineral metabolism.

Treatment of Progressive Muscular Dystrophy.—Milhorat investigated the creatine-creatinine elimination and the creatine tolerance in children without metabolic disorders, and he observed that phosphate and glycine were without influence. The same tests in fourteen cases of progressive muscular dystrophy revealed that glycine regularly increased the creatine elimination, and phosphate and glycine increased it still more. The increased creatinuria subsided gradually with varying

rapidity, but it did not always reach the original values again. In two instances the creatinine elimination increased during the glycine treatment by 150 mg. Two children with deficient muscular tonus reacted to glycine treatment with increased creatine elimination. Patients with secondary muscular atrophy, on the other hand, showed no excessive creatinuria following administration of glycine. Thus glycine is helpful in the differential diagnosis between primary myopathias and secondary degenerations. Glycine administration improved the condition of a patient with myatonia congenita and of a child with flaccid muscles. In patients with progressive muscular dystrophy, treatment with glycine effected at first a rapid and then a slower improvement in the functional capacity of the muscles, provided they had not yet become completely atrophied. The histologic examination of excised portions of muscle from three patients with muscular atrophy, who had received glycine for three months, revealed either completely atrophied or entirely normal fibers. Intermediate stages were absent. Glycine acts on the metabolism of the resting muscle. During myopathias it is present in deficient quantities and its administration is therefore a causal therapy.

Jahrbuch für Kinderheilkunde, Berlin

138: 1-128 (Jan.) 1933

*Galactose Intolerance (Galactose Diabetes) in Child with Neurofibromatosis. G. Fanconi.—p. 1.
*Roentgen Irradiation of Mongolism and Its Influence on Cholesterol Content of Blood. A. Mader and E. Bingenheimer.—p. 9.
*Pathogenesis of Enuresis. S. Ederer and E. von Lederer.—p. 21.
Osteitis "Tuberculosa" Multiplex Cystica with Sarcoid and Involvement of Lymph Nodes of Pulmonary Hilus. W. Bayer.—p. 31.
Nature of Granules in Protoplasm of Neutrophil Leukocytes Which are Stainable According to Mommsen. J. Moldawsky.—p. 44.
Duration and Quantity of Circulation in Children, Aged from 6 to 15 Years. H. Seckel.—p. 56.
Attempt to Use Titrated Antitoxic Serum in Scarlet Fever. S. N. Rosanow, N. J. Skworzow, A. A. Kislowskaja, B. S. Hirschberg, A. D. Sabulonowa, J. L. Sachs and S. N. Dolbnina.—p. 67.
Rôle of Hemato-Encephalic Barrier in Genesis of Intoxications: Pathologicohistologic Changes in Central Nervous System. S. J. Schaferstein, Nina Popowa and Eugenie Owtscharenko.—p. 95.
Treatment of Mastoiditis. M. Meyer.—p. 114.

Galactose Intolerance in Neurofibromatosis.—Fanconi discovered a pronounced galactosuria in a boy, aged 9, who had neurofibromatosis and zonular cataract. The neurofibromatosis (von Recklinghausen) as well as the cataract were familial, as the mother, a sister and probably also a brother had neurofibromatosis, while two sisters of the boy had zonular cataract. The galactosuria became manifest when the diet contained galactose or lactose (milk). When small amounts (2 Gm.) of galactose were given, approximately 50 per cent was eliminated in the urine; in the case of large amounts (60 Gm.), 87 per cent was eliminated. In the course of a galactose tolerance test the blood sugar increased to 460 mg. per hundred cubic centimeters. When the 60 Gm. was given in three portions of 20 Gm. each, the blood sugar curve took a similar course but the maximum was lower, being only 261 mg. per hundred cubic centimeters. Galactose was the only sugar that the patient did not tolerate; other carbohydrates, such as dextrose and levulose, were well tolerated. Tolerance tests with these substances gave entirely normal blood sugar curves; even subcutaneous injection of epinephrine did not cause elimination of sugar, and an abundance of carbohydrates (500 Gm. bread value daily) did not produce melituria, provided the diet was milk free. The author thinks that the decrease in the galactose tolerance is in some manner related to the neurofibromatosis. It is known of this condition that it may concur with numerous, congenital anomalies and also that persons affected with it die relatively early of a generalized cachexia with severe myasthenia.

Roentgen Irradiation and Cholesterol in Blood in Mongolism.—Mader and Bingenheimer found that the cholesterol content of the blood is always extremely low in mongolism. They discuss the biologic and the phylogenic causes of this behavior in connection with the various hypotheses of pathogenesis, and also the immunobiologic significance of the cholesterol content of the organism. Roentgen rays, which are known to increase the cholesterol, were applied to the temples of children with mongolism. The focus distance was 40 cm. The fields were 6 by 8 cm. Each irradiation lasted from one to five minutes, and from 5 to 10 per cent of the unit skin dose was applied to each field. During the time the children were in the clinic, the irradiations were given about six times each month. In ambulatory cases that were treated for years, one or two irradiations were given monthly. The cholesterol content increases approximately 100 per cent in the first half hour after the irradiation. The maximum is reached after from five to six hours, or several days pass until it is reached; then it gradually decreases again to the original values or, as a rule, to intermediate values. The curve is approximately the same after all successive irradiations. The authors also tried to apply the rays to other regions of the body, such as the shoulder or the inguinal regions, but they found that the irradiations were more effective when applied to the centers of the midbrain, which in mongolism show a deficient development. Roentgen irradiation, in increasing the cholesterol content, increased with it probably the resistance against infections in children with mongolism. The psychic and somatic conditions, however, were not influenced even in cases in which the roentgen treatment was continued for several years.

Pathogenesis of Enuresis.—According to Éderer and von Lederer, the opening and closing mechanism of the bladder is governed by the following regulators: (1) spinal automatism, (2) subcortical automatism, (3) cortical, voluntary innervation of striated vesical muscles, and (4) cortical, reflex modification of the subcortical center, either directly or by way of Müller's corticosympathetic reflex. Under normal conditions the bladder is constantly closed and the opening is effected voluntarily. Involuntary opening of the bladder takes place in normal persons only in exceptional cases, for instance as a result of hypermaximal stimulation of the subcortical center, such as by overdilatation or by strong sensory or psychic stimuli. The cortical control of the bladder is not a congenital condition but is acquired in the course of a certain developmental phase of the cerebral cortex. In discussing this development the authors show that, during the nursling age, automatism dominates and the vesical reflexes are still unconditioned and take their physiologic course; that is, the urgency stimulus results in opening of the bladder. An entirely different condition is produced by training to bladder control. The physiologic unconditioned opening reflex is opposed by a restriction. The urgency stimulus concurs with the cortical control of the closure mechanism, and by repetition a conditioned reflex is produced. Lessened cortical sensitivity and an increased threshold stimulus make the fixation of a conditioned reflex more difficult. The clinical experiences in enuresis corroborate this, for children with low mentality yield less readily to treatment than do older and more intelligent children. The authors maintain that enuresis is always the result of abolishment or slackening of the conditioned reflex, with the exception of cases that are the result of organic disorders of the central nervous system or of the urinary passages. The functional disturbance may, of course, set in at different points of the reflex arc; that is, the sensitivity of the cortical cells may be reduced or the sensitivity of the subcortical centers may be increased, or the two conditions may coexist. In regard to the treatment of enuresis, the authors state that it should aim to reestablish the abolished or slackened conditioned reflex.

Klinische Wochenschrift, Berlin

12: 89-128 (Jan. 21) 1933. Partial Index

Microbiology, Immunology, Epidemiology of Pneumococcic Diseases. M. Gundel.—p. 89.
Results of Recent Investigations on Pneumococci and Pneumococcic Diseases with Especial Consideration of Pneumonias. A. Lauche.—p. 92.
Results of Recent Investigations on Pneumococci and Pneumococcic Diseases. S. Engel.—p. 96.
Demonstration, Characteristics and Occurrence of Antithyroidal Protective Substance in Blood and Tissues. K. J. Anselmino and F. Hoffmann.—p. 99.
High Frequency Conduction Capacity of Blood in Ultrashort Wavelengths. H. Schaefer.—p. 102.
Fibrinogen Formation and Blood Coagulation. T. Wedekind.—p. 103.
*Brain Tumor Oliguria. R. Schmidt.—p. 105.
*Appendicitis and Sympathetic Nervous System in Gynecology. H. Wiesbader.—p. 106.
Hyperfunction of Thyroid in Gravidity: Action of Epinephrine on Iodine Content of Blood of Pregnant Women. W. Scheringer.—p. 107.
Rational Myxedema Therapy. E. Nobel and A. Ronald.—p. 108.
Benzene Leukemia in Human Beings and in White Mice. G. O. E. Lignac.—p. 109.
*Meinicke Clarification Reaction in Cerebrospinal Fluid. W. Jehn.—p. 110.

Brain Tumor Oliguria.—In the course of a compilation of his observations on brain tumors, Schmidt noted that in nearly all cases the specific gravity of the urine was high

and that the twenty-four hour quantities of urine were small. This was the case also in patients in whom there was no loss of fluid by other channels (vomiting, sweating, diarrhea). From this the author concludes that oliguria is one of the most frequent symptoms of cerebral tumor, although other reports on brain tumors do not mention it. He thinks that oliguria is the result of increased cerebral pressure, because, following trepanation and pressure decrease, oliguria may change even into polyuria and the thirst increases. The point of attack of the intracranial pressure is probably in the mesencephalic-hypophyseal system, and the author assumes that the oliguria of brain tumor is a disturbance in the water exchange of mesencephalic-hypophyseal origin. Edema is usually absent in this form of oliguria. The author advises that all patients presenting oligodipsia, oliguria or disturbances in the humoral-histogenic water exchange should be examined for the presence of mesencephalic-hypophyseal disturbances.

Appendicitis and Sympathetic Nervous System in Gynecology.—Wiesbader maintains that in disturbances of the appendix disappearing completely after surgical treatment, although the appendix shows only slight changes, the sympathetic nervous system is involved. Changes in the vermiform appendix may lead by way of the sympathetic innervation to disturbances in the menstrual cycle which disappear again following removal of the appendix. The author made observations on fifty cases: Operative treatment was resorted to in thirty and conservative treatment in twenty. Appendicitis symptoms existed in seventeen of the thirty cases and the operation revealed only slight changes; dysmenorrheal and appendical lesions existed in seven other cases, and there were menstrual disturbances together with changes in the appendix in the remaining six. The other twenty patients received conservative treatment in the form of a spasmolytic medicament. In these cases, spastic conditions in the ileocecal region and in the appendix predominated, and the author thinks that in such instances spasmolytic medicaments will give the best results.

The Meinicke Clarification Test in Cerebrospinal Fluid.—According to Jehn, the Meinicke clarification test on the cerebrospinal fluid is a method that is easy to perform and consequently suitable for small laboratories, and in reliability it is hardly inferior to that of the Wassermann test. Its sensitivity is not noticeably superior to that of the Wassermann test. The author thinks that the nonspecific reactions of the Meinicke clarification test in meningitis, particularly in tuberculous meningitis, are insignificant. The test makes possible the differentiation of the form of the syphilitic disturbance of the central nervous system with small quantities of cerebrospinal fluid. The fact that only a small amount (from 0.75 to 1 cc.) of fluid is required is a great advantage of the Meinicke clarification test. The author states that he gave especial attention to the outcome of the test in nonsyphilitic disorders of the central nervous system and he found that it was always negative.

Medizinische Klinik, Berlin

29: 107-140 (Jan. 20) 1933. Partial Index

Diseases of Pancreas and Progress in Their Operative Treatment. W. Sebening.—p. 107.
*Significance of Hemato-Encephalic Barrier. H. Hoff.—p. 112.
Therapy of Schizophrenia. O. Lampl.—p. 115.
*Aspects of Syphilitic Thrombophlebitis. A. Schick.—p. 116.
*Acute Poisoning with Neoarsphenamine with Lethal Outcome in Addison's Disease. A. Hellfors.—p. 117.
Present Status of Serotherapy in Diphtheria. F. von Bormann.—p. 118.

Significance of Hemato-Encephalic Barrier.—On the basis of the present status of research, Hoff assumes that the cerebral fluid is formed by the choroid plexus, the meningeal vessels and the secretions of the lymph spaces of the brain; that it is resorbed by the arachnoideal villi, by the meningeal veins and by the sheaths of the nerves, and that its formation is governed by the physical laws of dialysis and infiltration. However, these alone are not sufficient and a specific secreting mechanism cannot be entirely excluded. Pharmacologic substances that are introduced directly into the cerebral fluid pass immediately into the blood, but only a few substances pass from the cerebral fluid directly into the central nervous system. This indicates that in addition to the hematocerebral fluid barrier there is a second barrier, which protects the brain against substances passing the hematocerebral fluid barrier, and the author states that this is the glia wall that surrounds the brain. Thus the hemato-encephalic barrier consists, in addition to the hematocerebrospinal fluid barrier, of a glia wall. In this glia wall the microglia have a selecting rôle, but the main decision as to whether substances are to enter the cerebral cells takes place in the cell membranes themselves. Only a small part of the nutritional substances required by the brain reaches it by way of the cerebral fluid. But although only few nutritional and pharmacologic substances reach the brain by way of the cerebral fluid, the hematocerebral barrier is penetrated by infectious agents. Most of the nutritional substances are carried from the blood by way of the microglia and the cell membrane into the cerebral cell. Consequently, if the brain is to be influenced by a pharmacologic substance, the main object should not be to break through the hematocerebral fluid barrier (which can be done only by crude and not entirely harmless means) but to penetrate the glia wall gradually and to open the cell membrane of the ganglions.

Syphilitic Thrombophlebitis.—Schick reports the clinical history of a patient with thrombophlebitis of the left leg. The painful, cordlike hardening extended from the popliteal fossa to the tendo calcaneus. This phlebitis had been refractory to all therapeutic measures for nine months. The anamnesis and the seroreaction finally revealed that the condition was of a syphilitic nature. Antisyphilitic therapy cured it within a comparatively short time. The case is noteworthy because the phlebitis developed during the tertiary stage of syphilis, whereas syphilitic inflammation of the veins usually occurs during the secondary stage.

Fatal Poisoning with Neoarsphenamine in Addison's Disease.—Hellfors relates the case of a woman, aged 42, who, following operative removal of an ulceration of the labia minora, developed symptoms of icterus, some of which disappeared following treatment. Because syphilis was suspected the patient was given an injection of neoarsphenamine. This was followed by a severe circulatory collapse, from which the patient died twelve hours later. The postmortem examination revealed tuberculosis of the suprarenals with complete caseation. The case is noteworthy because, in spite of the complete destruction of both suprarenals, there were no clinical signs of Addison's disease, and because of the fatal effect of the single, small (0.15 Gm.) dose of neoarsphenamine. The author points out that the arsenic may have caused a breakdown of the last remnant of the suprarenal system, and thus the detoxifying influence of the suprarenals was entirely abolished. He reports this case to call attention to the fact that arsphenamine therapy is fraught with danger in patients with Addison's disease and states that, although the German medical literature has given little attention to this problem, it has been repeatedly discussed in other literatures and that it has been pointed out that the administration of epinephrine is helpful in preventing such undesirable complications.

Münchener medizinische Wochenschrift, Munich

80: 83-124 (Jan. 20) 1933

Symptomatic Interventions on Nervous System, Particularly Those for Prevention of Pain. O. Foerster.—p. 83.
*Vitamins and Hormones. J. Kühnau and W. Stepp.—p. 87.
Heboidophrenia. J. Lange.—p. 92.
*Fecal Concretions in Vermiform Appendix. L. Aschoff.—p. 96.
Calcifications of Connective Tissues of Heart in Roentgenogram. G. W. Parade and F. Kuhlmann.—p. 99.
Research on Pneumococci and Specific Therapy of Pneumonia. P. Martini.—p. 100.

Vitamins and Hormones.—Kühnau and Stepp discuss the relations between vitamins and hormones. Recently it has been shown that the animal cell participates in the preparation of vitamins and that the exogenic origin, formerly assumed as self evident, can no longer be considered a characteristic quality of the vitamins. There are interrelations and transitional states between vitamins and hormones. The knowledge about the interrelations between vitamins and hormones has been advanced by chemical studies and by biologic experiments. It has been found that the relation between fat soluble vitamins and the hormones of the gonads is based on their chemical relationship. The authors illustrate this with structural formulas. They cite biologic observations on the correlations between vitamins A and B, the thyroid and iodine

metabolism. Vitamin B influences thyroidal action, and under normal conditions there seems to be a relation between the suprarenal cortex, the thyroid and vitamin B. The authors discuss the influence of vitamins A and E on the sexual functions, the relations between the anterior lobe of the hypophysis and vitamin E, and the synergism of vitamin D and the hormone of the parathyroids.

Fecal Concretions in Vermiform Appendix. — Aschoff discusses the pathogenesis of the fecal concretion of the vermiform appendix. He evaluates the significance of fine hairs as determining centers of fecal concretion and the part played by fecal impaction, and he points out that the etiologic significance of the fine hairs is not fully understood as yet and that it is not even known whether the fecal concretion develops in the appendix or is forced from the cecum into the appendix. In this connection he discusses the function of the vermiform appendix and the physiologic stasis of feces and shows that the movements of the appendix differ from those of the other portions of the intestine. He describes his observations on the oxydase reaction of the fecal matters and of the layers of mucus. Since the concretions of the vermiform appendix consist largely of mucous layers, he thinks that inflammatory conditions in the appendix are a factor in the development of the mucous layers, because inflammation results in excessive secretion of mucus. As the bacteria found in the mucous layers of the appendix are those that occur in the appendix, the author concludes that the fecal concretion causes an attack of appendicitis not as a result of its mechanical action but rather because its mucous covering favors the growth of microorganisms that, under certain conditions, reach such a degree of virulence as to provoke an attack.

Wiener klinische Wochenschrift, Vienna

46: 65-96 (Jan. 20) 1933

What Does Modern Surgery Owe to Modern Times? P. Walzel.—p. 65.
*Hyperglycemia and Glycosuria in Coronary Thrombosis. D. Scherf.—p. 69.
*Influence of Atmospheric and Climatic Factors on Organism of Children: Curative Significance. L. Moll.—p. 71.
Therapy of Schizophrenia. H. Kogerer.—p. 73.
Chlorine Gas in Treatment of Chronic Suppurations of Mucous Membrane of Middle Ear. F. Mossböck.—p. 76.
Treatment of Chronic Bilateral Diseases of Kidneys. R. Fleckseder.—p. 77.
Diagnosis and Therapy of Gonorrhea in Men. A. Wiedmann.—p. 78.
Therapy of Genital Hemorrhages During Puberal Period. O. Reichelt.—p. 81.

Hyperglycemia and Glycosuria in Coronary Thrombosis.—Scherf calls attention to the frequent occurrence of a temporary hyperglycemia and glycosuria following coronary thrombosis. He found these two signs missing in only two of eight cases. In discussing the significance of hyperglycemia and glycosuria (rarely also acetonuria), he points out that they cannot be the result of the intense pain only, nor merely the accompanying manifestations of the shock, because they were observed in patients without shock and with still high blood pressure. Glycosuria of short duration was even observed in a patient in whom the coronary thrombosis was painless. The author thinks that, in addition to other factors, the changes in the regulation of blood pressure are of great significance, since glycosuria was present at a time when the blood pressure was still high. Moreover, the resorption of the decomposition products of protein, the high carbon dioxide content of the blood, and pharmaceuticals, such as morphine, caffeine and epinephrine, may be causal factors in the development of hyperglycemia.

Climatotherapy of Children.—Moll recommends sea climate for children with chronic catarrhs of the upper air passages, and for those with chronic cough, coryza, pharyngitis, tonsillitis or eczema; for children in whom tuberculous infection has taken place and in whom it becomes manifest as an enlargement of the bronchial glands, and for those with extrapulmonary tuberculous infection, either of the skin or of the joints. Sea climate has curative value in children convalescing from severe bronchitis, pneumonia or pleurisy. Neuropathic manifestations, with the exception of the severe forms, constitutionally weak children and those with late rickets are also benefited by sea climate. However, sojourn at the seashore is not advisable in active tuberculosis, renal disease, articular rheumatism, otitis media and cardiac defects. The author recommends mountain climate particularly for anemic children, because the reduced oxygen tension of the mountain air stimulates blood formation. Sojourn in the mountains is beneficial in beginning pulmonary tuberculosis, but only in mild cases. It is essential that the exposure to sunshine be carefully regulated. Mountain climate is also advisable for children with tuberculosis of the glands or bones. Constitutional weakness and retarded development is favorably influenced by mountain climate as well as by sea climate. Children who, as the result of endocrine disorders, are obese or are inclined to laziness, and children with puberal disturbances should be sent to the mountains. Those with bronchial asthma require a prolonged stay in the mountains. The warm high mountain climate is beneficial in mild cases of chronic articular rheumatism and in nephritis. For children who do not tolerate the strong climatic change, a mild inland climate is advisable in preference to the stimulating mountain or seashore climate. A warm inland climate may be considered for those children who have renal disorders, articular rheumatism and neuropathic and psychopathic disturbances, such as chorea, epilepsy and paralysis.

Zentralblatt für Chirurgie, Leipzig

60: 193-240 (Jan. 28) 1933

*New Point of View in Diagnosis and Treatment of Cicatricial Stenoses of Esophagus. R. Demel.—p. 194.
Method of Forming Intestinal Fistula with View to Its Later Spontaneous Closure. D. Sarafoff.—p. 198.
Early Diagnosis of Carbuncle. W. Mayer.—p. 212.

Cicatricial Stenoses of Esophagus.—The question of permeability of a cicatricial esophageal stenosis in the past was determined by attempts to pass sounds or filiform bougies. The roentgenologic method of investigation introduced at a later date was easier for the patient and at the same time rendered more reliable information regarding the degree of stenosis. The chemical test, introduced by Lotheissen, gave even more exact information. In this test, the patient is made to swallow a small amount of a 2 to 5 per cent solution of ferrous lactate. To the gastric contents, obtained five minutes later through the gastrostomy opening, are added a few drops of a solution of potassium ferrocyanide. In the presence of the smallest amount of ferrous lactate, a bluish discoloration takes place. The author points out that a stricture may be impassable from above but passable from below. In cases in which the chemical test was negative there was no alternative to the difficult many-stage plastic procedures on the esophagus by the anterior thoracic route. With the introduction of the electrolytic sound, the indications for operative intervention were still further reduced. The method conceived by E. Boeckel was further developed by Lotheissen of Vienna. It consists in the introduction through an esophagoscope of a copper wire ending with a screw, to which a metallic olive can be attached. The sound is connected with the negative pole of an uninterrupted current, while the positive pole is applied to the patient's back. A current of from 2 to 5 milliaperes is employed and the treatment is continued for not more than five minutes. The aim of the treatment is to induce hyperemia and to render the scar moist, thus making it more yielding to the sound. After some time the sound passes the obstruction without the use of any force. This occurs in some of the cases in the course of the first treatment, in others at the second or third treatment. To avoid burning of tissues, the treatments are given from five to seven days apart. As soon as the sound passes into the stomach, the end of it is brought out through the gastrostomy opening and a continuous sounding is made possible. Demel reports two cases of a supposedly complete stenosis rendered permeable by this method. He believes that truly impassable strictures are rare. The employment of the electrolytic sound, in his opinion, will still further reduce the number of operative cases.

Med. Parasitologiya i Parasitarnye Bolezni, Moscow

1: 117-195 (Nos. 3-4) 1932. Partial Index

Opisthorchis Infestation (Siberian Liver Fluke) in Northern Tobolsk. K. I. Skryabin, V. P. Podyapolskaya, N. P. Shikhobalova and Z. G. Vasilkova.—p. 120.
Biologic Data Concerning Opisthorchis Felineus (Rivolta), and Treatment of Opisthorchosis. N. N. Plotnikov and L. K. Zerchaninov.—p. 130.
*Symptoms and Treatment of Opisthorchosis. V. I. Kondratiev.—p. 140.

Opisthorchosis.—On the basis of his clinical observations of the Siberian liver fluke disease in man, Kondratiev makes the following deductions: 1. Opisthorchis felineus (liver fluke)

produces definite anatomic and functional changes in the liver, the gallbladder and the biliary tracts, at the same time influencing the general condition and the nervous system of the host. 2. A moderate eosinophilia is frequently observed. This, however, may be absent in lowered states of health. 3. Injections of emetine hydrochloride improve but do not cure the condition. Emetine has a cumulative effect which cannot be foretold because of idiosyncrasy to the drug. 4. Owing to the wide spread of liver fluke infestation in western Siberia, patients with symptoms referable to the liver and the gallbladder should be examined with particular regard to the presence of ova in the feces and in the duodenal contents.

Acta Chirurgica Scandinavica, Stockholm

71: 1-548 (Dec. 14) 1932. Partial Index

*Ileus in Liver Cirrhosis. W. Anschütz.—p. 32.
*Pancreatic Tumor with Hypoglycemic Status Epilepticus. T. H. Bast, E. R. Schmidt and E. L. Sevringhaus.—p. 82.
Cholecystography in Cases of Impaired Liver Function. H. Blomström and C. Sandström.—p. 135.
What Part is Played by Acute Appendicitis in Causation of Sterility in Young Girls and Women? P. Bull.—p. 155.
Case of Generalized Osteitis Fibrosa Improved After Removal of Parathyroid Tumor. O. Chievitz and H. C. Olsen.—p. 172.
Traumatic Lesions of Thoracic Organs and Abdominal Symptoms. P. N. Hansen.—p. 294.
*Tuberculous Empyema. C. A. Hedblom.—p. 311.
A Study of the Arteries in Two Cases of Raynaud's Disease. J. Ipsen.—p. 482.

Ileus in Liver Cirrhosis.—In a discussion of the diagnosis of ileus, Anschütz emphasizes the importance of the metallic clinking intestinal sounds and of the roentgenologic demonstration of fluid levels in the abdomen. The latter may be considered pathognomonic. In addition to the well known forms of ileus, he describes a rare form heretofore not mentioned in medical or surgical texts; namely, that of ileus in liver cirrhosis. His experience with this form embraces a group of six cases verified at necropsy and of two cases not so verified. The author points out that the onset was acute in only one case, that the pain symptom was not prominent and that the presence of liver cirrhosis was recognized before the operation in but one instance. Ascites and intestinal distention obscure the presence of an enlarged liver or spleen. All the patients operated on died. The nature of ileus is probably of reflex origin. The differential diagnosis is difficult unless one bears in mind the possibility of a liver cirrhosis. Operation is contraindicated. Opinion and atropine are valuable in the treatment.

Pancreatic Tumor with Hypoglycemic Status Epilepticus.—Bast and his associates report a case in which a man having epileptiform seizures for two years was found to be suffering from pronounced hypoglycemia. The hyperinsulinism was not produced as the immediate result of overstimulation of the pancreas by food. Relief from all symptoms was afforded by frequent feedings. At operation a tumor was removed from the tail of the pancreas. Detailed study of this mass suggests that it may have to be considered a carcinoma. Various types of cells are shown in photomicrographs. The abnormal cells include some which have a partial resemblance to beta-cells. The atypical cells are to be correlated with the atypical occurrence of symptoms. The diffuse distribution of abnormal cells may be associated with the persistence of symptoms for two weeks after removal of the tumor. Relief remained satisfactory eight weeks after operation.

Tuberculous Empyema.—According to Hedblom, tuberculous empyema may be primary or secondary to a pulmonary lesion. It is proved to be tuberculous by the microscopic demonstration of tuberculosis bacilli in the exudate, by culture, by animal inoculation and by the demonstration of tubercles in the pleura by thoracoscopy (Jacobæus) or by biopsy. It may be secondarily infected by pyogenic bacteria. A complicating bronchial fistula usually results in secondary pyogenic infection. Thoracotomy drainage always results in secondary infection. The aim of treatment of a primary tuberculous empyema, not secondarily infected with pyogenic organisms, is obliteration of the cavity by reexpansion of the lung. This may be accomplished in whole or in part by substituting a negative tension pneumothorax for the pyothorax. If a residual cavity persists, it may be obliterated by an extrapleural thoracoplasty. In case of a tuberculous empyema sterile to pyogenic culture, complicating an active pulmonary tuberculosis on the same side, the aim is to obliterate the cavity by an extrapleural thoracoplasty in several stages following aspiration of the pus. A tuberculous empyema secondarily infected with virulent pyogenic organisms requires immediate adequate drainage to combat the pyogenic infection. Closed drainage (Bülau) with frequent irrigation of the cavity is tolerated by the patient far better than rib resection and open drainage, but in case there is a large bronchial fistula open drainage may be necessary. After the secondary infection is controlled, a thoracoplasty is usually necessary to obliterate the cavity in the primary type, and in the secondary type the pulmonary tuberculosis and empyema furnish a double indication for it. A secondary resection of the parietal pleura usually is necessary to the obliteration of an infected residual cavity. In a series of 143 cases of tuberculous empyema, sixty-one patients were treated by aspiration, irrigation and drainage, and twenty-two died (36 per cent). Eighty-two were subjected to radical surgical treatment; twenty-three of these had no secondary infection and the cavity was obliterated in eighteen (74.7 per cent); there was no mortality. Fifty-nine had secondary infection; the cavity was obliterated in thirty-eight (64.4 per cent), but a sinus persisted in nineteen; twelve died (20 per cent). The mortality in tuberculous empyema is due in a large measure to active tuberculosis and to a virulent infection, or to their combined effect. Cavities should be obliterated early to prevent infection. When present, the first objective should be to combat it.

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*III. Continued Investigations on Mineral Metabolism During Pregnancy and Lactation: Osteoporosis—Rickets. K. U. Toverud and G. Toverud.—p. 18.
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Cultivation of Tubercle Bacilli.—Danbolt cultivated tubercle bacilli directly from tuberculous tissue by Löwenstein's sulphuric acid method in thirty-four out of thirty-six cases (thirty of lupus vulgaris and six of scrofuloderm), or 94.5 per cent. Attempts to cultivate tubercle bacilli from excised tissue in sixteen patients with skin diseases considered related to tuberculosis were unsuccessful. Of the nineteen cases of lupus vulgaris in which simultaneous inoculation in guinea-pigs was done, sixteen gave positive results both on direct cultivation and on inoculation. He says that the direct cultivation of tubercle bacilli according to Löwenstein can give quicker results, is more easily carried out in the clinic, and is less expensive than inoculation in guinea-pigs, and can partly replace, partly supplement the latter, as there are strains of tubercle bacilli that are pathogenic to men but not to guinea-pigs.

Mineral Metabolism During Pregnancy and Lactation.—The Toveruds found that a cod liver oil dosage, though fully effective and present in sufficient quantity during fetal life, lactation and further growth, cannot protect the bone system from undergoing an extensive osteopathic process when the quantity of minerals in the diet is low.

Diseases of Iliosacral Joint.—Hald says that after the age of 30 the iliosacral joint shows a rising percentage of pathologic changes and tendency to spontaneous ankylosis. The most common cause of iliosacral diseases is either trauma or chronic infection. The most constant observations are tenderness along the inferior sacro-iliac ligament and the tuberosity of the ischia and pain on compression of the pelvis. Bending while standing is greatly limited. Radiating ischial pain always suggests a possible disease of the iliosacral joint. Positive roentgen results are seen in only 2 or 3 per cent of the cases. In acute iliosacral diseases, treatment is conservative. In chronic cases a successful arthrodesis may be the best treatment. In early cases of tuberculous inflammation of the joint, operative treatment is possibly better than the conservative.